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REPORT

ON

REDUCING OUR VULNERABILITY TO ATTACK

BY THE

DIRECTOR OF THE OFFICE OF DEFENSE MOBILIZATION

TO THE

JOINT COMMITTEE ON DEFENSE PRODUCTION

CONGRESS OF THE UNITED STATES

JUNE 4, 1957

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STATEMENT OF THE CHAIRMAN

The 84th Congress, in extending the Defense Production Act in June 1956, amended section 2 and added the following language:

> In order to insure productive capacity in the event of such an attack on the United States, it is the policy of the Congress to encourage the geographical dispersal of the industrial facilities of the United States in the interest of the national defense, and to discourage the concentration of such productive facilities within limited geographical areas which are vulnerable to attack by an enemy of the United States. In the construction of any Government-owned industrial facilities, in the rendition of any Government financial assistance for the construction, expansion, or improvement of any industrial facilities, and in the procurement of goods and services, under this or any other act, each department and agency of the executive branch shall apply, under the coordination of the Office of Defense Mobilization, when practicable and consistent with existing law and the desirability for maintaining a sound economy, the principle of the geographical dispersal of such facilities in the interest of national defense. Nothing contained in this paragraph shall preclude the use of existing industrial facilities.

This report on Reducing Our Vulnerability to Attack was submitted to the Joint Committee on Defense Production in accordance with section 2 and section 712 (b) of the Defense Production Act.

A. WILLIS ROBERTSON.

LETTER OF SUBMITTAL

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF DEFENSE MOBILIZATION,
Washington, D. C., May 20, 1957.

Hon. A. WILLIS ROBERTSON,
Chairman, Joint Committee on Defense Production,
Washington, D. C.

DEAR SENATOR ROBERTSON: It is a pleasure to submit to you this report on reducing our vulnerability to attack. It deals with an area of nonmilitary defense which is receiving growing recognition as an important element of our national security preparations.

In order to describe adequately the nonmilitary defense activities of the Office of Defense Mobilization and its delegate agencies, it has been necessary to include in this report factual material with which other agencies might more appropriately deal. The Federal Civil Defense Administration, the Department of Defense and other agencies have cooperatively supplied us with that information necessary to a well-rounded report on those nonmilitary defense activities for which the ODM has major responsibility.

Sincerely yours,

GORDON GRAY, *Director.*

REDUCING OUR VULNERABILITY TO ATTACK

I. Introduction

The United States lives under the threat of massive, crippling attack. The Soviet Union has the weapons and it has the means to deliver them. Despite our best defenses, now and in the future, an enemy attack on us would probably result in the explosion, on the continental United States, of a substantial and growing number of thermonuclear weapons.

It is our national policy to promote peace and justice in our dealings with other nations. To do this we must have the strength to deter aggression. Strength, as a deterrent, is effective to the extent that it is related to the capability of any potential enemy to inflict injury on us. Our deterrents include:

Offensive force, which discourages aggression because any potential aggressor knows that an attack on the United States would result in instant and massive retaliation;

Military defense, which discourages or reduces the effectiveness of attack on the United States by intercepting such an attack;

Nonmilitary defense, which discourages attack by reducing the likelihood of its being sufficiently effective to destroy us. Nonmilitary defense is a dual defense—it both reduces the chances of attack and increases the chances of survival if attacked.

These deterrents to attack against the United States must be developed in relation to each other. A serious weakness in any one deterrent could cause an enemy to decide that the gains from an attack would outweigh the risks.

This report deals with only a part of our nonmilitary defense; namely, those elements concerned with industrial and governmental activities. It does not deal with the vitally important elements of civil defense, such as alert warning, shelters, evacuation, and post-attack relief and rehabilitation. This report is concerned only incidentally with the protection of the population; primarily with the protection of industrial and governmental facilities.

In limiting our discussion to facilities—not people, it is important, however, that we not lose sight of our basic priorities. This Nation puts the preservation of human life far above the preservation of things. Furthermore, people are vastly more vulnerable in a thermonuclear attack. Facilities, equipment, supplies, are vulnerable to blast and thermal radiation. People are vulnerable to blast, thermal radiation, and also to nuclear radiation—fallout. This means that without extensive preparations to protect people, destruction of our human resources would far exceed destruction of our physical resources.

At any given moment in time, in this, the era of the H-bomb, defensive capabilities have a tendency to lag behind offensive capabilities. Our defensive responses have not caught up to the growing power of thermonuclear weapons or the growing ability of a potential

enemy to deliver them. To one extent or another this s true of mobilization planning, of civil defense, and of public opinion. For example, we know that shelters are an important element of nonmilitary defense, but we still have many unanswered questions regarding them. For another example, although both the executive and legislative branches of the Government have advocated a policy of dispersion since 1947, most of our public buildings lack both dispersion and protective construction features. Studies are now underway to give us better answers to many of these questions.

There are no absolute answers in this field. Our objective in the nonmilitary defense area cannot be absolute security. That is not attainable. Our objective is to attain a degree of security within reasonable economic bounds—a degree of security without which even a military victory would mean defeat. By concentrating on the most important tasks, and by directing our dollars and our energies where we can hope to realize the most sizable gains, we can make real progress.

We have made progress. This report tells of the cumulative effects of gains made through existing policies and programs regarding dispersion, continuity of government, protective construction, industrial defense, etc. These gains have been achieved mostly by information and education, together with voluntary action on the part of industrial leaders who recognize our common peril.

There is no cause for complacency, however. The problem of nonmilitary defense must inevitably occupy a growing part of our national attention in the years to come. This report about what has been done, should be of assistance to those in the Congress, in the executive branch and among the public who are grappling with what must still be done.

Section II evaluates our vulnerability to attack. It first describes the concentration of our sources of economic strength. Weapons of mass destruction are tailormade for mass concentrations. These concentrations then become likely objects for enemy attack. The identification of possible targets in the United States—as a basis for knowing where to concentrate our efforts—is the first step. The constantly increasing capabilities of the U. S. S. R. make this a continuing problem. Advances in the ability of the U. S. S. R. to deliver more and bigger weapons means that we must deal with more and bigger targets. As for the danger from fallout—which drifts with every passing wind—every part of the United States is subject to some risk. Section II also tells of the work of many Federal agencies to predict the effects of attack damage, and then it summarizes what we know of those effects on industry, agriculture, transportation, and other segments of our economy.

Section III—the bulk of the report—is devoted to a discussion of the many programs to reduce this vulnerability—to protect the economy as a deterrent to attack. Different measures are needed to reduce vulnerability to different dangers—blast, fire, fallout, sabotage, and espionage. No single measure is adequate to protect against all dangers. Dispersion, for example, provides good protection from blast and fire; it does not provide good protection from fallout and sabotage. Accordingly, it is hoped that the reader will judge each program not in terms of its self-sufficiency, but in terms of the extent to which it contributes with all the others to a balanced and effective nonmilitary defense.

II. Evaluating Our Vulnerability

1. Concentration of our economic strength

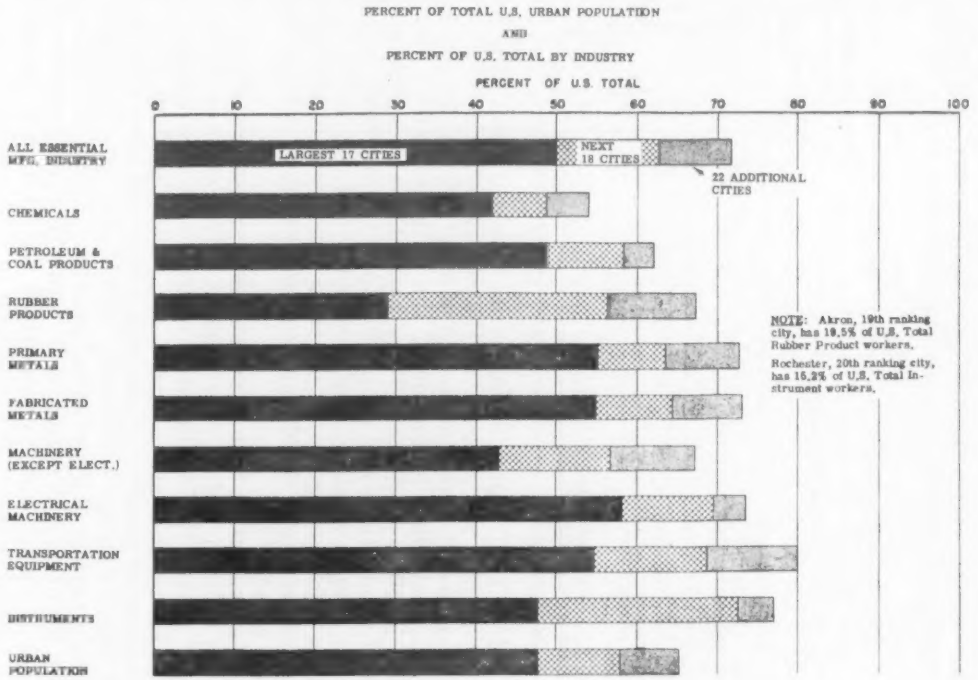
American industry is heavily concentrated in our major metropolitan areas. As the following table and the accompanying chart show, in 1953 the 17 American cities with the largest population contained 50 percent of all essential manufacturing industry (measured in terms of employment); the 35 largest cities contained 62 percent. The next 22 cities contained 9 percent of essential industry, making a total of 71 percent of all essential manufacturing industry in the top 57 ranking cities.

Type of manufacture	Percent of United States total		
	In top 17 areas	In top 35 areas	In top 57 areas
Chemicals	41.9	48.9	53.8
Petroleum and coal products	49.1	57.9	61.9
Rubber products	29.0	55.8	67.2
Primary metals	54.8	63.2	72.3
Fabricated metals	54.6	64.1	72.7
Machinery (except electrical)	42.6	56.2	66.9
Electrical machinery	58.1	69.6	73.2
Transportation equipment	54.2	68.9	80.0
Instruments	47.8	72.4	76.8
Total essential defense industry	50.0	62.6	71.3
United States urban population	47.8	57.5	64.9

This is a high degree of industrial concentration. On the other hand, when it is recognized that the Soviet Union's entire industrial production is only about 30 percent of ours, and that 29 percent of our essential production is outside of the 57 largest cities, our relative position is still a good one. These percentages vary among different types of production; our problem is one of protecting certain vital elements of our overall industrial economy and, beyond that, working toward a balanced segment of our total industry in dispersed locations so that our economy could continue functioning at a lower level after massive attack.

So, the evaluation of our vulnerability must precede an effective program to reduce that vulnerability. This evaluation has several aspects. One is the identification of areas of concentration of population, industry, military strength, etc., that would be likely targets in the event of attack. Another is a new and very promising technique called damage assessment, which enables us to estimate the effects of a variety of hypothetical attacks. Finally, we must evaluate specific facilities and resources in terms of their importance to the national economy and to postattack survival, and determine the extent to which they are vulnerable to destruction in the event of attack.

EMPLOYMENT IN ESSENTIAL DEFENSE INDUSTRY-57 TOP RANKING METROPOLITAN AREAS



Source: County Business Patterns 1953.
U. S. Department of Commerce and Health, Education and Welfare.

2. Identification of targets

Target identification is not purely of technical significance, since so many economic and social implications are involved in programs of dispersion, protective construction, procurement, continuity of government, etc. The matter of criteria for defining target areas has inevitably become involved in many considerations of a political and economic nature.

The problem is made much more difficult by the growing power of thermonuclear weapons and the growing ability of the potential aggressor to deliver them. For example, the blast radius of a 20-megaton bomb is 20 miles; the blast radius of a 50-megaton bomb is 27 miles. If circles of this size are drawn around all the possible targets on the northeastern seaboard, virtually the entire area is covered.

There are at present two basic target lists in existence, which serve two different purposes: The Commerce Department's list of targets for the national industrial dispersion program, and FCDA's list of target areas for civil-defense purposes. The following discussion will explain how targets are identified and the purposes these identifications serve.

National industrial dispersion program targets.—Following announcement of the first national policy on dispersion in 1951, the Commerce Department established a program of working with local dispersion committees to determine target areas. This has been continued under the revised policy issued by ODM in January 1956.[1]

For the purposes of the national industrial dispersion program, three categories are assumed to be prime enemy targets. These are (1) urban concentrations of industry and/or population, (2) individual key industrial facilities not located in the above urban industrial concentrations, and (3) major military installations.

Key industrial facilities are those highly important manufacturing and service facilities listed in the Defense Department's official key facilities list. This list includes most of the facilities listed in the critical industrial facilities list developed by the Interagency Industry Evaluation Board.

Major military installations are installations determined by the Department of Defense to be of high operational or strategic importance to the national military program. Because the Department of Defense is the only agency with complete information on the importance of individual military bases, the identification of such installations for the purposes of the dispersion program is the sole responsibility of the Defense Department.

Urban target areas, as defined for the purposes of the dispersion program, are cities which have as many as 200,000 people or 16,000 workers in defense-related industries, concentrated within a 4-mile diameter circle. American cities presently meeting the above criteria number 50, and others will be added as employment and population levels in them reach these criteria. These cities are starred in the list on page 7.

The dispersion survey is the means of identifying urban concentrations of industry and populations that are sufficiently large to be con-

[1] See appendix 1, Defense Mobilization Order I-19, Dispersion and Protective Construction—Policy, Criteria, Responsibilities, January 11, 1956.

sidered prime targets in the event of enemy attack. Surveys to ascertain whether a city meets these criteria are normally undertaken at the local level by voluntarily formed community dispersion committees. These local surveys are submitted to the Office of Area Development for review and certification.

The Office of Area Development of the Department of Commerce also advises industry, on request, regarding the suitability of specific locations in terms of dispersion. In rendering this advice, the Commerce Department obtains the views of the Department of Defense regarding proximity to military installations and key industrial facilities. Because of this variety of factors—some of them classified—the Commerce Department does not issue an overall list of target areas or locations not suitably dispersed.

Proposals have been made, from time to time, to increase substantially the number of cities used in dispersion planning. The rationale of Commerce in using roughly a half-hundred cities for this purpose can readily be understood in view of the fact that, as indicated by the chart on page 4, the 57 largest cities contained 71 percent of all essential manufacturing industry. Any large increase in the number of target cities being used for the purposes of the program would seriously restrict the number of dispersion-adequate areas for manufacturers seeking sites for new production facilities, and make it more difficult to achieve dispersion without the use of greater incentives.

Federal Civil Defense Administration targets.—While the Commerce Department is interested in keeping its list to the smallest practicable number of prime targets, the FCDA requires a broadly inclusive list as a basis for civil-defense planning by the States and cities. FCDA's original criteria were as follows:

1. Target areas include all standard metropolitan areas (which, by definition, contain at least 1 city of 50,000 population or more), and all capitals of States, Territories, and possessions.

2. Critical target areas are those target areas which contain 40,000 or more manufacturing employees, plus Washington, D. C.

Major target areas in the United States

[All of the cities on this list are critical target areas as defined by FCDA. Those starred are also target areas as defined under the national industrial dispersion program. Boundaries for dispersion purposes are not the same as the FCDA definitions]

Area	1950 population	Area	1950 population
1. Akron (Ohio)*	410,032	38. Memphis (Tenn.)	482,393
2. Albany-Schenectady-Troy (N. Y.)*	514,490	39. Milwaukee (Wis.)*	871,047
3. Allentown-Bethlehem-Easton (N. J.-Pa.)*	437,824	40. Minneapolis-St. Paul (Minn.)*	1,116,509
4. Atlanta (Ga.)*	671,797	41. New Britain-Bristol (Conn.)*	146,983
5. Baltimore (Md.)*	1,337,373	42. New Haven (Conn.)*	264,622
6. Binghamton (N. Y.)	184,698	43. New Orleans (La.)*	685,405
7. Birmingham (Ala.)	558,92	44. New York, N. Y., and northeastern New Jersey (N. Y.-N. J.)*	12,911,994
8. Boston (Mass.)*	2,369,986	45. Norfolk-Portsmouth-Newport News (Va.)	589,427
9. Bridgeport (Conn.)*	258,137	46. Peoria (Ill.)*	250,512
10. Buffalo (N. Y.)*	1,089,230	47. Philadelphia (Pa.-N. J.)*	3,671,048
11. Canton (Ohio)*	283,194	48. Pittsburgh (Pa.)*	2,213,236
12. Chattanooga (Tenn.-Ga.)	246,453	49. Portland (Oreg.-Wash.)	704,829
13. Chicago (Ill.-Ind.)*	5,495,364	50. Providence (R. I.-Mass.)*	737,203
14. Cincinnati (Ohio-Ky.)*	904,402	51. Reading (Pa.)	255,740
15. Cleveland (Ohio)*	1,465,511	52. Rochester (N. Y.)*	487,632
16. Columbus (Ohio)*	503,410	53. Rockford (Ill.)*	152,385
17. Dallas (Texas)*	614,799	54. St. Louis (Mo.-Ill.)*	1,681,281
18. Davenport-Rock Island-Moline (Ill.-Iowa)*	234,256	55. San Diego (Calif.)*	556,808
19. Dayton (Ohio)*	457,333	56. San Francisco-Oakland (Calif.)*	2,240,767
20. Denver (Colo.)	563,832	57. Seattle (Wash.)*	732,992
21. Detroit (Mich.)*	3,016,197	58. South Bend (Ind.)*	205,058
22. Erie (Pa.)*	219,388	59. Springfield-Holyoke (Conn.-Mass.)*	407,255
23. Evansville (Ind.)*	160,422	60. Syracuse (N. Y.)*	341,719
24. Fall River-New Bedford (Mass.-R. I.)	274,767	61. Toledo (Ohio)*	395,551
25. Flint (Mich.)*	270,963	62. Trenton (N. J.)*	229,781
26. Fort Wayne (Ind.)	183,722	63. Utica-Rome (N. Y.)	284,262
27. Fort Worth (Tex.)*	361,253	64. Washington (D. C.-Md.-Va.)*	1,464,089
28. Grand Rapids (Mich.)	288,292	65. Waterbury (Conn.)*	154,656
29. Greensboro-High Point (N. C.)	191,057	66. Wheeling-Steubenville (Ohio-W. Va.)	354,092
30. Hartford (Conn.)*	358,081	67. Wichita (Kans.)*	222,290
31. Houston (Tex.)	806,701	68. Wilkes-Barre-Hazleton (Pa.)	392,241
32. Indianapolis (Ind.)*	551,777	69. Wilmington (Del.-N. J.)	268,387
33. Kansas City (Kans.-Mo.)	814,357	70. Worcester (Mass.)*	276,336
34. Knoxville (Tenn.)	337,105	71. York (Pa.)	202,737
35. Lancaster (Pa.)	234,717	72. Youngstown (Ohio-Pa.)*	528,498
36. Los Angeles (Calif.)*	4,367,911		
37. Louisville (Ky.-Ind.)	576,900		

Under these criteria there are currently 195 target areas, of which 72 are critical target areas.[2]

Recently, the FCDA target criteria have been considerably broadened, including for the first time a specific statement in regard to certain military aspects of targeting. The definitions for these particular military aspects were furnished by the Department of Defense and represent an unclassified definition of targets, since highly classified targets cannot be specifically identified.

The new target criteria (expressed as assumptions) are as follows:

A. It is assumed that bases of military retaliation, other important military installations, and concentrations of population and industry will be targets for nuclear attack.

B. It is assumed that an aggressor will select targets from the following categories with priorities determined by its objectives at any particular time:

1. Critical target areas as defined in Target Areas for Civil Defense Purposes.

2. Civil and military airfields with hard-surfaced runways of 7,000 feet or more, with major servicing and maintenance facilities.

[2] The complete list, including definitions and population, is in Target Areas for Civil Defense Purposes, July 1, 1953, as revised by Advisory Bulletin No. 149, revised December 18, 1956. A current list may also be found in the FCDA annual statistical report.

3. Major harbors, ports, and naval bases.
4. AEC facilities.
5. Major military command and control headquarters, such as the Pentagon, Continental Army Command, Naval Sea Frontiers, Strategic Air Command, Continental Air Command, and Tactical Air Command.
6. Target areas other than critical target areas, as defined in Target Areas for Civil Defense Purposes, including all State capitals.
7. Army and Marine Corps posts and stations housing divisions of the general Reserve and Fleet Marine Force.
8. Major military service supply depots.

In many cases, a number of the above military and civilian categories will be found close together. For example, New York City meets the criteria of at least the following categories: (*a*) Critical target area; (*b*) major port; (*c*) naval base; (*d*) airfields with hard-surfaced runways in excess of 7,000 feet.

C. It is assumed that an aggressor may choose to direct attack at any one, several, or all aiming points within a target area. Some targets contain only one probable aiming point. Most, however, either because they are large in area or because they are composed of a variety of military and civilian targets, contain a number of aiming points.

D. It is assumed that all possible targets will not be attacked either in the initial blow or subsequently. The number of targets to be attacked or the pattern of attack cannot reasonably be predicted at any specific date.

Although no new list of targets has yet been published, more than 300 targets have been identified to date which meet one or more of the above criteria.

The possibility of several aiming points in a target area, expressed in assumption C above, coupled with the possibility of aiming errors, tends to alter the old concept of a target area as a series of concentric rings around a specific point. The size of the target area has been increased by the growing power of the bombs; it is increased even further by the uncertainty of aiming points. As a result of these considerations, the target experts in FCDA are currently exploring a new concept, tentatively called the aiming area concept. These aiming areas might include a number of adjacent cities or military installations and the entire area would be regarded as vulnerable. While this concept has received informal acceptance from ODM and the Department of Defense, agreement on its application and use has still to be reached.

3. Damage assessment

The National Damage Assessment Center.—Under the direction of ODM, a National Damage Assessment Center has recently been established in a dispersed location, staffed by personnel from 14 Federal agencies. Equipped with the latest in electronic computing equipment, the center is engaged in making a variety of studies of potential damage under varying attack assumptions as well as preparing to make rapid postattack damage computations if ever needed.

This work is based on the recent development of a method which permits rapid computations of assumed bomb damage effects, using

information as to the size of the bomb, the height or type of burst, and the location of ground zero, which is compared with coded information on the location of various mobilization resources. The resources information is recorded on magnetic tapes so that the computations can be made quickly through the use of electronic computers. Thus it is possible to plan hypothetical attacks against many targets in the United States, and to compute the overall physical damage, radiological contamination and casualties that can be expected.

So far, with the cooperation of the participating agencies, the center has recorded on computer tapes information regarding military installations, personnel, supplies, and equipment, facilities important to continuity of Government; telecommunications, radio and TV facilities; rail, highway, water and air transport facilities; electrical generating and transformer stations; facilities on planned military production schedules; facilities rated as critical by the Industry Evaluation Board; petroleum refining and storage facilities; all manufacturing establishments with 100 or more employees; stockpiles of strategic and critical materials; food processing facilities; grain storage facilities; and FCDA medical and other supplies. On each of these (which include approximately 150,000 points), the center has data on location, classification or type, physical vulnerability and, in most cases, some quantitative measure of importance. In addition, the center has received from FCDA and stored on magnetic tapes, data on the population, medical personnel, housing units and hospital beds in each of about 24,000 areas into which the United States is divided (varying in size from census tracts in metropolitan areas to counties in sparsely populated areas) and data on livestock and arable land in each county.

The center is currently processing basic data covering atomic energy facilities, supplies and suppliers, water systems, banking facilities, and facilities in selected production chains developed by the Business and Defense Services Administration, United States Department of Commerce.

General vulnerability studies.—The National Damage Assessment Center is also working on the problem of determining the relative vulnerability of various targets. The Department of Defense has played a major role in this work. The latest development in this field of attack susceptibility prediction is a series of "general vulnerability" studies and "survival probability" indices. United States resources (military and nonmilitary, structural and human) are grouped into various likely target systems, each related to an enemy objective. Subjective judgments are applied separately to the likelihood of each system being included in various hypothetical enemy attacks, in the light of the offensive effort required to attack each target system. These estimates of offensive effort are based upon the degree of dispersion of the target system and estimated enemy losses during the attack. The overall attack probabilities are translated into expected weapon assignments to each element of each target system. These expected weapon assignments are then summed up by geographical area and the probable area of destruction determined. The resultant risk of loss applies to each resource in the area, whether or not it was a contributing target element. Through this procedure

it is possible to develop a survival probability index for resources in each area.

At present these techinques have received only limited analysis. The information will soon be processed on the high-speed computer to obtain answers that should materially increase the sensitivity and flexibility of these techniques. At present they reflect only blast and thermal effects. In the future, a method will be tested for computing the fallout probability, based on the overall pattern of attack probabilities and expressed as a mean fallout probability with accompanying expected standard deviation for all points in the United States.

The great advantage of the survival probability indices will lie in the fact that they consider the average effect of many different target systems and enemy capabilities. This is preferable for planning purposes, to any single assumed attack pattern. It is also superior to a simple separation of United States resources into target and nontarget areas, based merely upon the presence or absence of the kinds of resources considered.

Already these indices are being applied to analyze the vulnerability of (1) the Federal relocation sites; (2) several basic industries of major importance to the Department of Defense; and (3) selected products required for survival of the population after attack. The three military departments are presently making reduction of vulnerability studies regarding current and planned locations of critical military supplies in the continental United States with a view to better dispersion of stocks within existing facilities. The military departments have also been invited to propose such additional steps as may appear necessary to improve stock dispersal, including new or protective construction.

Chains of production studies.—While the loss of output following the destruction of a particular end-item factory is obvious and generally recognized, an obscure but often more important loss may be experienced from destruction of suppliers of materials and components to plants located in undamaged areas. It is entirely possible, for instance, to lose a truck assembly plant without loss of truck output, so long as the flow of materials and components can be diverted to other assembly plants, or where the assembly can be performed in an open field. By contrast, if the only supplier of a specific component were bombed out, production could be lost completely even though assembly plants and all other sources of component and material supply remained functioning.

What might be termed "horizontal damage analysis" comprehends analysis of plant capacity losses of specific types without reference to the interdependence of the various types of capacity. The assessment of the loss of production of end-product items, due not only to the loss of the plants making the end product, but also to the loss of suppliers to this plant, may be termed "vertical damage analysis," or analysis of chains of production.

The Business and Defense Services Administration is now completing an exploratory survey of this problem. Each BDSA industry division chose an end product for survey, which would be suitable to illustrate the various aspects of vertical damage assessment and its relationship to horizontal damage assessment, and which might also be of some critical importance in case of nuclear attack. For each

such end product, the division also made a list of the principal components and materials necessary to manufacture that product, selecting particularly those from limited or geographically concentrated suppliers. Twenty-three such products were surveyed, with questionnaires going to 336 companies virtually all of whom replied. On the average, there were 20 materials or components and 20 manufacturers of each end product.

The analysis of the replies to the questionnaires confirmed the complexity of the overall problem of damage analysis and especially of the vertical approach. In many cases the postattack capacity for an end product, estimated only from direct facility losses, is reduced to a much smaller fraction by vertical analysis. Additional study is now underway to determine the extent to which vertical analysis can be used in the damage assessment system of the National Damage Assessment Center.

FCDA studies.—While the FCDA participates in the National Damage Assessment Center, it has done considerable work of its own in this field in connection with matters of particular concern to civil defense. FCDA is planning a separate computer site which, when completed, will cover the special needs of FCDA in determining losses of population, hospitals, doctors, food stocks, etc., and would be available as an alternate site if the National Center should be lost. An automatic monitoring system to provide information on ground zero, yield of weapon, and height of burst is now under research. In addition, the decentralization of the system to the seven FCDA regional offices and the procurement of additional computers is being considered for the future.

Survival plan studies.—In addition to the national damage assessment and vulnerability studies, a considerable amount of work has been taking place at the local community level. This has been accomplished primarily through two mechanisms: The survival plan studies, sponsored by FCDA, and the local industrial dispersion committees, sponsored by the Commerce Department.

In 1955, survival plan studies were undertaken in specific target and reception areas, to meet the growing need on the part of the States and their political subdivisions, as well as the national need, for specific plans designed to meet the survival needs and problems of local communities. Essentially, the studies are intended to develop evacuation, shelter, welfare, engineering, health, fire, safety, and radiological operational plans required for the maximum protection and survival of people in target and reception areas. The studies conducted in these areas reveal the vulnerability of individual communities and provide the basis for an analysis of the factors contributing to their vulnerability. Under the terms of the survival plan contracts, this activity is followed by the formulation of effective operations plans for survival. These studies are completed by the actual testing of the operations plans to evaluate their workability.

Thirty-nine cities, States and metropolitan areas have undertaken survival studies. Currently, project agreements are being negotiated with 15 additional cities and States.

Dispersion studies.—Local dispersion committees are functioning in 100 urban areas.[3] These committees, a keystone in the national

[3] See U. S. Department of Commerce, Industrial Dispersion Program: Progress in Urban Areas of the United States, March 15, 1957. This report contains names and addresses of all local committees.

dispersion program, consist of civil leaders and citizens representing various phases of community life. They have contributed voluntarily of their own time and expense to prepare dispersion surveys and to advise industry and the Federal Government on the dispersion facts of their areas.

To date, 60 urban areas survey reports have been reviewed and certified by the Office of Area Development for use in counseling industry. These survey reports include the preparation of local industrial dispersion maps, which officially determine whether any concentrations of industry and population exist as defined under the national industrial dispersion program.

4. Vulnerability of our economic resources

Industry.—Within specific industries there is great variation in the extent to which production is concentrated in individual plants, and in the extent to which these plants are critical to national security. The job of identifying these critical facilities is coordinated in the Department of Commerce by the interagency Industry Evaluation Board. This Board is concerned with identifying products, services and supporting facilities which are essential to national defense and to the basic civilian economy. With the active participation of the industry divisions of the Business and Defense Services Administration and assistance from other agencies, the Board makes or reviews a large number of analyses, out of which it has developed a critical industrial facilities list. The list of critical facilities is included on the magnetic tape records of the National Damage Assessment Center. Facilities on the list have received priority attention in the industrial defense programs of the Department of Commerce and other agencies.

In addition to participating as a member of the Industry Evaluation Board, the Department of Defense has been engaged continually since 1948 in a resources evaluation program for the selection of industrial facilities, utilities, services and installations which are essential to the support of the military logistics programs. The facilities selected are rated on the basis of their relative importance, for inclusion in the Department of Defense key facilities list. This list, issued and revised periodically by the Joint Chiefs of Staff, is a classified document used primarily for three purposes: (1) for designating the industrial facilities which come within the scope of the Department of Defense industrial defense program; (2) for use in planning the military defense of the continental United States; and (3) for assessing vulnerability stemming from geographic or product concentrations of essential defense industry.

Agriculture.—The Department of Agriculture has made vulnerability analyses of 26 food-processing industries; several others are nearing completion or are in process. Vulnerability analyses have also been made in some of the more important areas where the agricultural economy is the primary consumer of the products.

The wide dispersion of farms means that a relatively small proportion would be affected by blast and thermal effects regardless of the pattern of an enemy attack upon this Nation. Little can be done to change the vulnerability of farms in the vicinity of target areas. One step which farmers can take to reduce vulnerability on the farm is to plan for shelter for themselves and their livestock to reduce the danger from fallout.

Recent cooperative studies by the Atomic Energy Commission and the Agricultural Research Service indicate that if farm animals are confined in a barn during at least the period of heavy fallout following an atomic attack, livestock casualties from radiation will be only a fraction of the level to be expected if animals are out in the open. Of all the farm meat animals, poultry are the least susceptible to injury from radiation and swine the most susceptible. Also, the meat from animals exposed to high levels of radiation is suitable for human food, provided the animals have not eaten fission products. Meat from animals which have eaten contaminated feed would be considered edible after the bone structure and viscera have been discarded.

A new tabulation has just been completed, showing location, types of structure and capacity, by bin sites, for all Commodity Credit Corporation-owned bin storage facilities. In total, CCC-owned bins have capacity for about 991 million bushels in 909 counties in 21 major grain-producing States. CCC also has 51 experimental bins at 4 sites in Alabama, Georgia, and Louisiana. There are 4,019 bin sites in the 909 counties containing a total of 238,544 separate structures or bins. These bins are concentrated in the commercial corn areas, particularly in Iowa, Illinois, Minnesota, and South Dakota. The new tabulation indicates the wide dispersion of these facilities and their low vulnerability to nuclear attack. None of these CCC bins is located in a critical target area, and very few are within the areas immediately adjacent to the target area cities.

The situation for agricultural processing industries is quite different from that for farms and grain storage. Vulnerability of processing industries varies from those such as cane-sugar refineries in which almost all of the capacity is located in critical target cities, to industries such as beet-sugar refineries in which all of the plants are located outside of the probable critical target areas. Other examples of concentration include cotton linter processors, Dextran plants, the wet corn milling industry, margarine plants, baking yeast plants and peanut-butter plants.

In the cases of some agricultural processing industries there are area concentrations which are highly vulnerable to enemy attack even though a major portion of the national capacity of the industry is well dispersed. Examples include slaughter and processing of meat in Chicago and flour milling in Buffalo. If these facilities were lost, other facilities could expand their operations, but transportation limitations would undoubtedly result in shortages in some areas.

The effect of fallout on the food-processing industry is difficult to predict. If fallout should make an area so radioactive as to require people to stay in shelters, it will mean that little or no food could be processed in such an area until people are again able to resume near-normal activities. In most cases it appears that agricultural processing facilities so affected by fallout will either have lost their radioactivity by the time people will be able to leave shelters, or the plant can be decontaminated and operations resumed at that time.

Containers must be available to pack perishable foods without delay, which requires continuous production of containers. Any interruption to production of food containers for an appreciable length of time would result in spoilage of food. A major portion of the production capacity for some of the key items in the container field are concentrated in critical target areas and therefore are quite vul-

nerable to enemy attack. On the other hand, the growth of the container and packaging industry in recent years has been very great. Production facilities for many types of container materials are more widely dispersed than in former emergencies, and the capacity for most types of containers has increased. In some instances there have been tremendous increases, particularly in the plastic and paper industries.

Transportation.—Surface transportation, as a whole, including the railroads and highways connecting cities, is of relatively low vulnerability to attack. Motive power, freight cars, and highway vehicles tend to be more dispersed than most industrial-target systems; hence, transportation capacity is not likely to be lost as rapidly as the industrial capacity which generates traffic. Exceptions are to be noticed for air and ocean transportation. The former depends upon a limited number of airports for the operation of the larger aircraft types and upon a communications and air traffic-control system which also is centered at particular points. Similarly, ocean-transportation capacity is governed by the ability to effect transfer between ship and land transportation in the ports. Although a surplus of port capacity is normally available, the large ports are highly vulnerable and the necessity to disperse shipping into the smaller ports will create operating problems of considerable magnitude.

Although a great part of the transportation system is relatively invulnerable to blast and thermal effects, the widespread fallout which is to be expected suggests that a shortage of experienced personnel will prove the most serious obstacle to the restoration of transportation services, since these personnel will tend to be lost in much larger proportion than the physical facilities. Therefore, much emphasis must be placed upon the protection of personnel and upon its use following an attack situation. The management echelons of transportation particularly tend to be highly concentrated and tend to resist dispersion.

Over the last 15 years, particularly, shifts in traffic from the railroad industry to other forms of transportation have been noteworthy. In particular there has been a rapid growth of trucking and, in recent years, of inland water transportation. These shifts in some respects improve and in others reduce the wartime potential of transportation. The great flexibility of truck transportation commends it for certain kinds of postattack operations. On the other hand, the relative decline of the railroad industry tends to deprive us in a degree of an availability of a form of transportation which is exceedingly economical in its use of fuel, of manpower, and of materials in the handling of large volumes of traffic.

Continuous study of these trends and adaptations, in the light of the most recent national planning assumptions, is necessary in order to determine needed Government action to maintain an adequate transportation mobilization base.

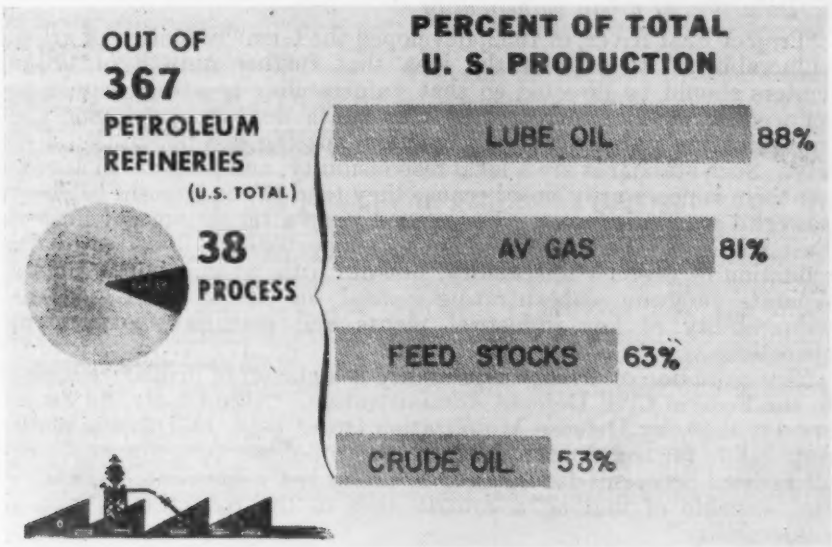
Fuels and power.—There are five principal types of targets in the petroleum and gas industries: producing fields, pipelines, tankers, storage terminals, and refineries. Facilities in the producing fields would most likely not be affected by attack because of their dispersed locations, and because they do not present attractive targets. Pipelines are not very vulnerable, because the lines are underground, and the pumping stations are relatively small and inconspicuous. Pro-

ducing facilities and pipelines would be vulnerable to sabotage, however. Tankers would be prime targets of enemy submarines, and considerable losses are to be expected. Storage terminals and refineries are generally prime targets on all counts. They would be vulnerable to blast, fire, and fallout. In addition, they are generally located in target areas. Large refineries may themselves be considered targets regardless of location. As the chart shows, although there are a large number of refineries in the United States, production of certain products is highly concentrated. Data on these facilities have been provided by the Department of the Interior for the national damage assessment system.

Coal mines, on the other hand, are widely dispersed and are not apt to be damaged under current conceptions of target patterns. Underground mines are readymade shelters against bomb damage and for temporary protection against fallout. Most coal-preparation plants are complex steel structures with devices for cleaning and sizing the product, and if damaged or destroyed, would require considerable time to replace. However, the industry started with timber structures and simple sizing equipment which could be used again, if necessary, in an emergency.

Due to the widespread interconnections of electric power throughout the Nation, any attack will destroy some parts of a utility's installations. Distribution lines and substations are particularly vulnerable, inasmuch as they are, due to the nature of electrical service, located in industrial and populated areas. Generating plants are generally not located within large centers of population but either on the fringes of such areas or in more remote locations. Blast-damage studies show that electrical facilities stand up remarkably well in all areas outside the inner A ring (see diagram on p. 22).

Aside from the human factor, fallout has no effect on generating, transmission, and distribution equipment.



Minerals industries.—Minerals industries—mines and ore-treatment plants—are restricted largely to areas in which are located the ores of the various minerals. Few mines, underground or open-pit, are located in or adjacent to target areas; however, custom facilities for smelting, refining, reduction, etc., are located principally in cities designated as target areas.

The hoisting facilities of an underground mine are vulnerable to bomb attack; but an open-pit mine is not significantly vulnerable.

Typical ore beneficiation facilities consist of steel structures with corrugated steel walls and roofs. This type of layout, housing complex machinery and equipment, is highly vulnerable to bomb attack. In fact, disaster to auxiliary services, like water and power, would render these plants inoperative.

A survey to determine physical vulnerability of individual facilities (mine or mill) in the minerals and metals area delegated by ODM to the Office of Minerals Mobilization, Department of the Interior, is approximately 33 percent completed. Precise locations (longitude and latitude), current production and capacity, and number of employees are included as input data for use in connection with bomb-damage assessment.

III. Reducing Our Vulnerability to Attack

This section is devoted to actions to reduce the vulnerability of our resources—actions which strengthen our mobilization readiness and thereby help to deter attack. Parts 1 and 2 deal briefly with efforts to synthesize broad programs for the reduction of urban and industrial vulnerability. The remaining parts of this section are concerned with detailed discussions of the major elements of these programs: dispersion, emergency relocation, protective construction, protective controls, and preparations for emergency management.

1. Reduction of urban vulnerability

Project East River, in 1952, developed the term "reduction of urban vulnerability" to express the idea that further growth of urban centers should be directed so that vulnerability to attack would be reduced rather than increased.[4] This can be done by developing and implementing standards of construction, spacing and population density. Such standards are a local responsibility, and progress in adopting them is necessarily slow because they tend to run counter to many powerful economic forces. For several years after issuance of Project East River, the Federal Government supported the objective of the reduction of urban vulnerability, but did little to implement it as a separate program, concentrating instead on efforts to reduce the vulnerability of key industrial plants and essential Government operations.

The reduction of urban vulnerability is a matter of primary concern to the Federal Civil Defense Administration. Accordingly, on January 11, 1956, by Defense Mobilization Order I–18, FCDA was made responsible for coordinating, at the metropolitan target zone level, all Federal programs for dispersion, urban redevelopment, highways, etc., capable of making a contribution to the reduction of urban vulnerability.

[4] Reduction of Urban Vulnerability, pt. V of the Report of Project East River, July 1952, Associated Universities, Inc., New York.

FCDA has defined the reduction of urban vulnerability concept to include two main elements: physical dispersal of new facilities to the maximum extent possible in the light of their proposed use; and incorporation of adequate protective designs in new construction consistent with anticipated hazards.

In December 1956, FCDA initiated a survey to determine the extent to which present Federal programs in many agencies are of significance in furthering dispersion and protective construction. This survey will determine those programs into which dispersion and protective construction standards might be introduced or those which require some other modification in this regard. FCDA believes that programs for lessening vulnerability or increasing the "hardness" of targets should not be carried on as separate programs, but as essential parts of normal governmental activities.

As a part of this survey, the Department of Commerce (Office of Area Development), under a memorandum of understanding between FCDA and Commerce, is preparing an annotated bibliography on reduction of urban vulnerability, which will include (1) a review and description of studies that have been made, (2) conclusions reached, and (3) actions taken or recommended. This material will help to provide FCDA with a basis for formulating a more comprehensive national policy and program on reduction or urban vulnerability.

2. Reduction of industrial vulnerability

The reduction of urban vulnerability program is paralleled by programs of several agencies for the reduction of industrial vulnerability. These programs are commonly called industrial defense programs. They involve work with industry—in some cases top management and in some cases technical people—to promote continuity of management, preservation of records, dispersion, protective construction, plant security, etc.

A great deal of work has been done in this field, and a great many publications have been issued on this subject.[5] The results of this activity are limited because the programs are almost entirely voluntary.

The three agencies with major programs in this field are Commerce, Defense, and FCDA. Other delegate agencies—Agriculture, Interior, and the Interstate Commerce Commission—have done varying amounts of work in this field, although they do not have formal programs.

FCDA's interest and guidance to industry is primarily concerned with industry's part in the survival activities of the community. The Department of Defense is concerned with the limited number of manufacturing and service facilities essential to its defense mobilization planning and readiness posture. Commerce and the other agencies are concerned with giving guidance to those parts of industry for which they have been delegated mobilization responsibilities by ODM. These programs are informally coordinated through close staff working arrangements.

[5] See Industry Defense—Sources of Reference and Guidance, Civil Defense Technical Bull. TB-16-3, FCDA, December 1955, which lists 60 publications, 8 magazine articles, and 23 films; and Report of Proceedings of Special Conference on Industry Planning for the Continuity of Production in the Event of Enemy Attack, U. S. Department of Commerce, 1957, which contains a bibliography of 75 publications and articles.

FCDA's industrial defense program has been directed toward creation of an awareness of the compelling necessity for actions to promote industry defense and continuity of industrial management. More than 300 industrial executives have attended and participated in FCDA staff college industry courses. Industrial defense has been stressed by FCDA at field training conferences conducted by such organizations as the National Safety Congress, the Industrial Association Executives, the American Society of Industrial Security, and the American Society of Industrial Training Directors. Informational materials dealing with industrial defense and continuity of industrial management have been disseminated through Government publications, magazines, and newspapers.

The Department of Defense, in its industrial defense program, aims to minimize the loss of war-use production or service capability of vital facilities through application of measures to reduce vulnerability from bombs and minimize the effects of damage, to safeguard against sabotage, and to afford rapid restoration of production following attack. In the more than 5 years this program has been in effect, substantial progress has been made toward achieving a goal of developing with management a complete program fitted to each plant designated by the Department of Defense as a vital facility. Considerable time and effort have been spent by the military departments in the performance of field surveys in training survey personnel.

The Armed Forces industrial defense regulation[6] is used in the administration and management of this program. This is a joint issuance of the three military departments and the Office of the Assistant Secretary of Defense (Supply and Logistics), designed to obtain a high degree of uniformity in this program. It also implements Defense Mobilization Order I–19. Under the provisions of the joint regulation, military-service representatives visit each vital facility at least once a year, conduct a survey of the plant, and assist management in assessing the security status of the plant. Recommendations for reducing vulnerability are also made. Participation in this program is wholly voluntary on the part of management. Government financial assistance is not available to industry to defray costs incurred in the adoption by management of recommendations made to improve the industrial defense status of private facilities. Nevertheless, the survey record during the past 5 years indicates that there has been a significant improvement in the industrial defense status of surveyed facilities. The surveys show a measurable increase in management recognition and awareness of the need for planning and continuous action to improve security conditions in each plant.

The Commerce Department's industrial defense program is carried out by the industrial defense staff of the Business and Defense Services Administration. It implements Defense Mobilization Order I–8, of February 10, 1954, which places responsibility upon the Secretary of Commerce for—

> guidance and leadership to industry in the development of plans and programs to assure continuity of production in the event of attack.

The Commerce Department program deals primarily with preparations for emergency management, and is described in detail in part 7 of this section.

[6] Armed Forces Industrial Defense Regulation (AR580-20, NAVEXOS-P-1441, AFR78-13), Department of Defense, November 1956.

Research and informational activities of the Department of Agriculture are directed to both industrial and agricultural defense. A guidebook entitled "Defense Guides for Commercial Food Facilities" (Agriculture Information Bulletin 169) will be issued by the Department in the near future. Developed with the cooperation of many food industries and trade associations, this guidebook contains factors for reducing industrial vulnerability including a general discussion on plant dispersion. It points up the seriousness of the problem and encourages the food-processing and wholesale distribution industries to take all feasible action to assure continuity of production after attack.

The Department's Forest Service has been delegated responsibility by FCDA for planning a national program to prevent or control fires caused by enemy attack in rural areas of the United States. Under some conditions, mass fires induced by atomic explosions could sweep through rural areas, destroying farms, towns, industries, powerlines, etc. As a first step, a national committee has been formed, composed of representatives of all agencies having responsibility for fire protection. Guidelines have been prepared and distributed, and planning committees have been organized in practically every State; instructions are being prepared to inventory the general problem and the resources available to meet it.

The Interior Department has carried out industrial defense guidance through its Office of Minerals Mobilization and its Office of Oil and Gas. In 1955 the Office of Oil and Gas, Department of the Interior, requested the National Petroleum Council, an industry advisory group, to recommend programs to be followed by these companies in developing plans to be used in event of a national emergency. The council's report, Disaster Planning for the Oil and Gas Industries, May 5, 1955, recommends programs covering all phases of industry preparations for emergency operations, including continuity of management.

While the Interstate Commerce Commission does not have a formal industrial defense program, there is a constant interchange of ideas and doctrine between its mobilization planning staff and industry which tends to enhance continuity programs both in and outside of Government. Beside a group of industrial consultants employed on a part-time basis or serving without compensation in this planning work, the mobilization planning staff regularly calls in management personnel from industry to assist in emergency exercises and similar undertakings.

3. Dispersion

Background of the program.—Following the Korean attack in 1950, it was decided to expand and build up our industrial capacity to meet anticipated mobilization demands. Inevitably, concern arose over the fact that new production facilities might be so located as to make our existing target areas even more attractive to enemy attack. Accordingly, a policy was adopted that, whenever possible, these new defense and defense-supporting facilities would be located far enough away from the major population and industrial concentrations so as to be relatively secure from the effects of an attack.

This original dispersion policy was announced by the President on August 10, 1951. Under the policy, local committees were established

to make industrial dispersion surveys and to help advise industry on suitable locations within the marketing areas of the various target cities. Suitably dispersed locations were regarded as those at least 10 miles from the periphery of any target identified as described in section II. The policy did not call for the relocation of existing facilities; only the dispersed location of new or expanded facilities. Needless to say, it was not wholeheartedly accepted by potential target cities, since in many instances it meant that new defense facilities would be located outside the cities' taxable area.

By 1956, new developments in weapons technology made it clear that the 10-mile rule was no longer adequate. Accordingly, on January 11, 1956, a revised policy was issued in Defense Mobilization Order I–19.[7] This policy recognized a variety of factors which must be considered in determining the appropriate distance which a facility should be from a target area, including the size and importance of the target; the size of weapon likely to be used against it; the characteristics of the proposed facility, including protective construction; and the economic, operational, and administrative requirements in carrying out the function for which the facility is to be provided.

In the middle of the year, the Congress, in effect, endorsed the national dispersion policy by adding to the Defense Production Act the following paragraph:

> In order to insure productive capacity in the event of such an attack on the United States, it is the policy of the Congress to encourage the geographical dispersal of the industrial facilities of the United States in the interest of the national defense, and to discourage the concentration of such productive facilities within limited geographical areas which are vulnerable to attack by an enemy of the United States. In the construction of any Government-owned industrial facilities, in the rendition of any Government financial assistance for the construction, expansion, or improvement of any industrial facilities, and in the procurement of goods and services, under this or any other act, each department and agency of the executive branch shall apply, under the coordination of the Office of Defense Mobilization, when practicable and consistent with existing law and the desirability for maintaining a sound economy, the principle of the geographical dispersal of such facilities in the interest of national defense. Nothing contained in this paragraph shall preclude the use of existing industrial facilities.

Counseling of industry.—The Department of Commerce (Office of Area Development) was assigned the responsibility under Defense Mobilization Order I–19, for—

> providing guidance and assistance to departments and agencies of the Federal Government, to industry, public and private persons and organizations (including local dispersion committees)—

in the application of the dispersion policy.

In this counseling, the Department's objective is to secure the greatest relative security of location within the particular local market area selected. This approach permits the natural functioning and growth of urban market areas and does not force regional decentralization. In order to accomplish this objective, the Office of Area Development advises on the dispersion adequacy of specific sites from population and industrial concentrations, and obtains a further determination from the Department of Defense of the dispersion adequacy of specific sites from major military installations and key industrial facilities.

Under the revised policy, the distance of a new facility from potential target and destruction areas is still regarded as a major factor in

[7] See append x I, Defense Mobilization Order I–19, Dispersion and Protective Construction—Policy, Criteria, Responsibilities.

reducing the risk of attack damage to such facility. The determination of an appropriate dispersal distance affording the greatest degree of relative safety is decided on a case-by-case basis, with due consideration given to the various factors referred to above.

Following is an example of how the dispersion counseling service works at the Washington level. Recently, the vice president of a manufacturing company called upon the Office of Area Development to check the dispersion values of several proposed sites under consideration for a new facility. After screening many locations, the company had narrowed its choice to four urban areas, all of which had already formed local industrial dispersion committees. Their approved dispersion surveys were on file in the Office of Area Development. Local reports on three of these areas clearly indicated they contained no population or industrial concentrations as defined in the national industrial dispersion program. The fourth report, however, identified and defined an industrial concentration sufficiently important to warrant classification of the urban area as a potential target area.

With the information from these reports, together with available public data on blast and thermal effects of some of the higher yield nuclear weapons, the company was given the following dispersion advice:

1. Regarding the three urban areas in which no population or industrial concentrations were identified, it was pointed out that any site selected by the company in the general areas covered by the dispersion reports would be considered adequately dispersed provided that: (*a*) employment in the new facility, when added to existing manufacturing employment in the vicinity, would not create a new target area; and (*b*) the proposed site was not considered by the Defense Department to be too close to a major military installation or key industrial facility. By checking with the Defense Department, approval was obtained for the three sites with respect to this dispersion factor.

2. As for the fourth area under consideration—an area where an industrial concentration had been identified by the local dispersion committee—the company was not advised against locating there, but rather was given data on the relationship of the specific site to the estimated blast and thermal effects of the optimum-sized bomb that might be dropped on that city. The site under consideration was checked for its location with respect to five zones of relative vulnerability (see accompanying chart):

(*a*) Zone A—where the plant was subject to complete destruction in event of attack. (Buildings and other facilities would be completely demolished.)

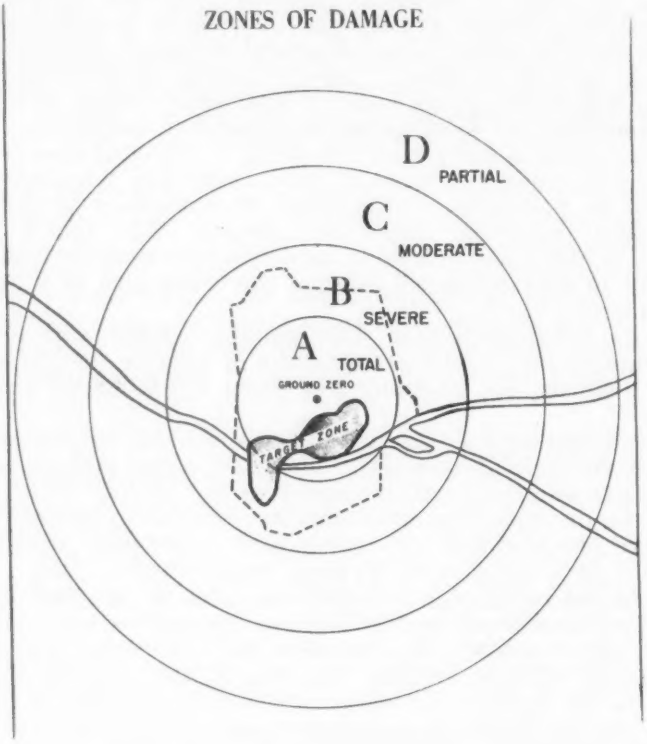
(*b*) Zone B—where the plant would experience severe damage. (Ordinary buildings would probably be damaged beyond repair.)

(*c*) Zone C—zone of moderate damage. (Buildings would require vacating for repairs.)

(*d*) Zone D—zone of partial damage. (Buildings would not require vacating for repairs.)

(*e*) Areas outside the above four zones where there would be the greatest degree of relative safety.

The site which the manufacturer had in mind was located in damage Zone D. The company was advised that the type of plant construction itself, plus any protective features that might be added to the construction, would make the site adequate from the viewpoint of the Government's dispersion policy.



Under the revised dispersion policy, new plants should be located an adequate distance from blast and thermal effects of an optimum-size bomb which might be dropped on the urban area. A 20 megaton H-bomb -- air burst - would result in the following damage:

Ring	Damage	Radius-Miles	Area-Square Miles
A	Total	5	80
B	Severe	10	230
C	Moderate	15	390
D	Partial	20	550

The Office of Area Development counselor advised the manufacturer that (1) there is an available incentive for adding protective features; (2) under the provisions of the Internal Revenue Code, the additional capital expenditures for protective construction features in a defense plant may be fully amortized over a 5-year period; and (3) this Federal assistance is not intended as a substitute for dispersion, but is primarily urged for facilities which, for compelling reasons, must be located nearer a potential target than is prudent.

The manufacturer was further advised to obtain more detailed data from the Federal Civil Defense Administration regarding protective construction standards and specifications (see p. 43).

During 1956, the Office of Area Development and the Department of Defense provided dispersion advice on 807 sites located in 44 States, as follows:

Regional Government relocation sites	291
1958 military construction program [1]	165
Certificates of necessity	135
Private industry	106
Defense Department facilities [1]	66
Petroleum storage	29
Veterans' Administration	13
Federal Reserve Board	2
Total	807

[1] Defense Department advice only.

It is expected that greater impetus will be given the counseling activities of the Office of Area Development during the coming year as more and more people become acquainted with the dispersion program and this service. The national dispersion policy will be effective to the extent that private industry recognizes the need and makes use of the counseling service. To accomplish this, the Office of Area Development is accelerating its educational program by distributing widely a release which describes the program and includes the following procedures: [8]

How to get a determination on the dispersion values of proposed plant sites with respect to—

Population and industry concentrations
Key industrial facilities
Major military installations

I. Indicate proposed site or sites on map. (Ordinary road map will suffice.)

II. Send marked map to—

Industrial Location Division
Office of Area Development
United States Department of Commerce
Washington 25, D. C.

III. Check with the local dispersion committee for its data on specific sites.

The national headquarters of the Federal Civil Defense Administration has requested 20,000 copies of this release for distribution to State and local civil defense groups and to industries participating in the FCDA industrial defense program. It is also being distributed through the 25 industry divisions of the Business and Defense Services Administration. A staff member of the Office of Area Development participates regularly in the staff college course on industrial defense held bimonthly at the FCDA national headquarters in Battle Creek, where he gives an illustrated lecture on the national dispersion program to the 100 or more industry and Government representatives attending each course.

Tax-amortization incentives.—Since 1952, ODM's program of rapid tax amortization as an incentive to defense-related expansions has called for construction in dispersed locations where feasible. Facilities

[8] U. S. Department of Commerce, Office of Area Development, The National Industrial Dispersion Program, March 1957.

which do not conform to the dispersion policy are not certified for tax amortization except in unusual cases where fully documented justifications from the appropriate delegate agency and procurement agency indicate that the facility under consideration is determined to be necessary to satisfy a Department of Defense or Atomic Energy Commission requirement which cannot be met by existing facilities or from facilities now being constructed or planned.

As a matter of administrative convenience, dispersion has only been required for major expansions, defined as—

(*a*) New facilities estimated to cost $1 million or more; or

(*b*) Expansions of existing facilities, representing more than 50 percent of existing capacity, provided the cost exceeds $5 million.

From July 1, 1952, through March 1, 1957, 73 percent by value of all facilities meeting these criteria were certified for dispersed locations; exceptions were granted for less than 12 percent, and the rest were denied. The actual amounts are set forth in the following table:

Application of dispersion criteria to rapid tax amortization program (July 1, 1952–Mar. 1, 1957)

	Number	Percent	Estimated cost	Percent
Projects to which dispersion criteria were applicable	867	100.0	$9,202,848,000	100.0
Projects in which proposed sites were found to conform to dispersion criteria not in congested urban areas or near major military installations	680	78.4	6,713,512,000	73.0
Exceptions granted to dispersion criteria because of documented proof submitted by the applicant that excessive losses or delays in production or unreasonable economic hardships or disadvantages would ensue due to selecting a location in accordance with dispersion standards	120	13.8	1,070,589,000	11.6
Cases denied for refusal to meet standards and inability to justify exception	67	7.7	1,418,747,000	15.4

In October 1956, new instructions were issued [9] providing that if there is additional capital investment required to locate a facility at a dispersed site, above that required to locate at an undispersed site, such additional capital investment will be eligible for 100 percent certification for rapid tax amortization, thus giving dispersal the same incentive as that applicable for protective construction.

Of 213 final actions taken between July 1, 1955 and March 1, 1957, on applications subject to the dispersion policy, 62 cases, estimated to cost $1,399,543,000, have been denied certification; and 31 cases, estimated to cost $319,540,000, were certified under exemptions recommended by the Department of Defense. These exemptions were mainly for expansion of existing airplane plants and research and development laboratories where new contracts demand expansion at the site. The justification is based upon an assumption that in an emergency such facilities, though highly vulnerable, may have fulfilled their immediate essentiality. During the same period, 120 projects, estimated to cost $2,593,145,000, were certified in dispersed locations, though subject to denial had they been located in a target area. Of these, 17, estimated to cost $645,278,000, were completely new plants for electric power, oil refining, aircraft, research and development, and guided missiles.

[9] See appendix 2, Memorandum From the Director of ODM to the Assistant Director for Production, Dispersion and Protective Construction—Policy, Criteria, Responsibilities Applicable to Defense Facilities Included in Applications for Tax Amortization, October 11, 1956.

CODE

BY-PASS ROUTES

EXISTING RADIO ROUTES

PROPOSED RADIO ROUTES

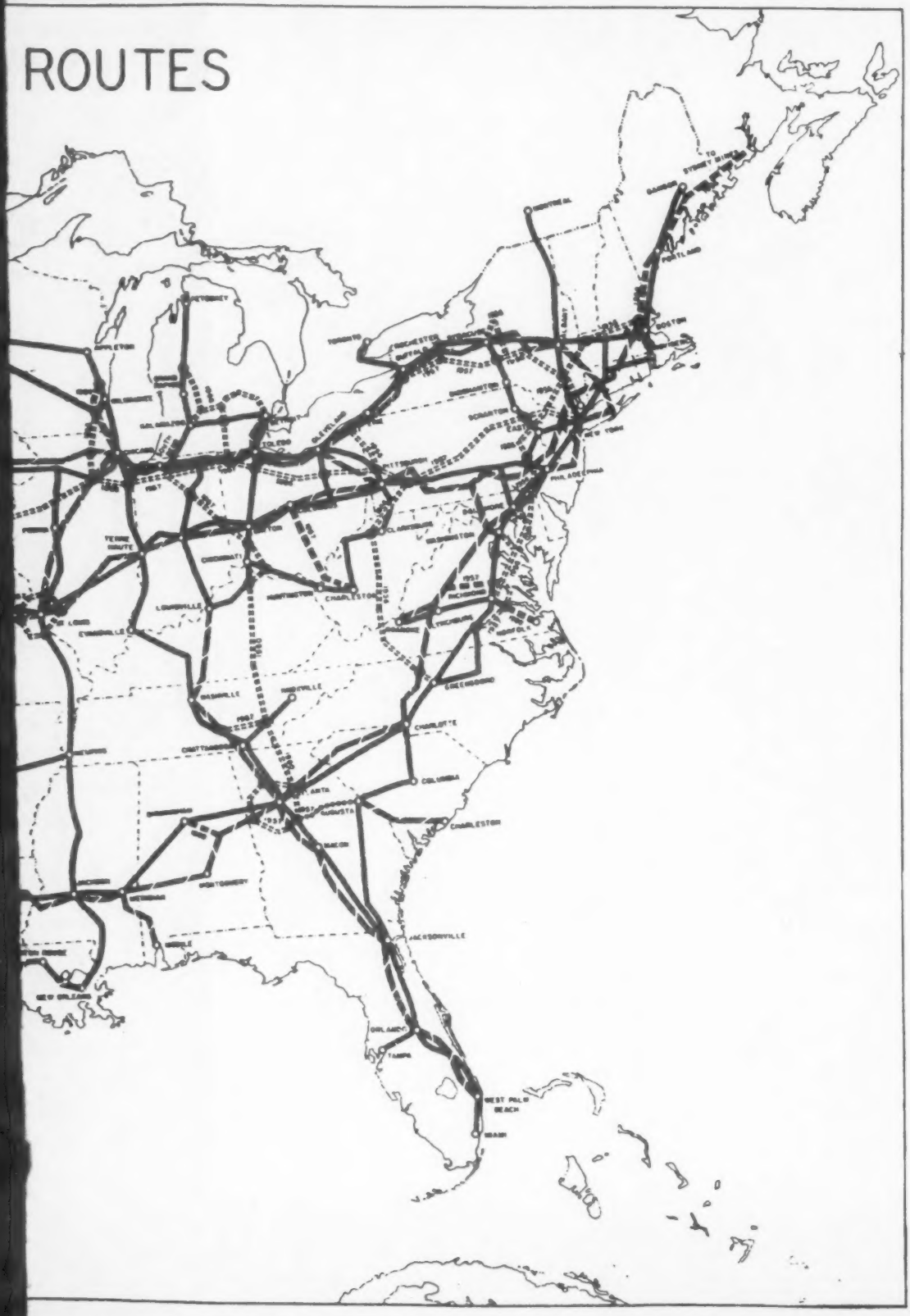
EXISTING CABLE ROUTES

PROPOSED CABLE ROUTES

INTERCONNECTION POINT

MAIN AND BY-PASS ROUTES

ROUTES



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The denial of applications has covered a wide range of industrial concerns, and has led to many conferences with their representatives which, in turn, brought the element of dispersion into consideration when those companies were considering sites for further expansion.

At least three powerplants which were recently certified were originally scheduled for sites in target areas, and were changed to dispersed sites. One was in Cleveland, Ohio, where ODM refused to certify an additional unit in the heart of the city, but later gave certification to the same expansion outside the target area. Southern California Edison, after discussion with the Office of Area Development of the Department of Commerce, selected 2 dispersed sites which were cleared by that Office and were certified at a time when 33 other power projects, estimated to cost $1,061,515,000, were being denied certification.

Companies which have made dispersion a major element in site selection include the General Electric Co., Glenn L. Martin Co., United Aircraft, Minneapolis-Honeywell, and Lockheed Aircraft Co. In most cases the home plants were located in target areas or had become targets in themselves, so that no further expansion could be certified.

Of course, it should be noted that a considerable amount of dispersion is taking place without any Government incentives. One of the most notable examples is the program of the American Telephone & Telegraph Co. to construct trunk routes across the country, bypassing critical target cities and other important centers. This project has been undertaken at a cost of nearly $100 million, not only to assure the integrity of the national network in war, but to take care of the rapid growth and dispersion of telecommunications in the present high-level economy. The inserted map shows the extent of this project, which is scheduled for completion this year.

Another example of dispersion is found in the electronics industry, motivated by a variety of economic and national security factors. During World War II, some 40 percent of this industry was concentrated in the Chicago area, whereas today less than 10 percent is so concentrated. Since World War II, Winston-Salem, Phoenix, Denver, and Tucson have been increasing, and are continuing to increase, their percentage of the total electronics capacity.

Military industrial facility expansions.—The industrial capacity expansion programs of the military departments since the beginning of the Korean war have included 725 expansion projects of $1 million or more each, valued in total at $6.5 billion. About half of this Government-financed capacity expansion is in privately owned industrial facilities. About two-thirds of the dollars allocated to these projects were for new production equipment, mostly machine tools, and another 20 percent was for new construction or rehabilitation of plant structures. In many cases the projects were necessarily expansions at existing facilities, and there was no opportunity to improve their location from a vulnerability standpoint.

Of the 725 projects, 355, representing 54 percent of the total program cost, were located outside of the most likely potential targets for nuclear attacks.

Over half of the total program cost was for aircraft and related production facilities ($3.4 billion) and of these, only 38 percent were in locations considered adequately dispersed. Ammunition facilities

are nearly always relatively well dispersed, for considerations of civilian safety, and 78 percent of the $1.5 billion ammunition program is in well-dispersed locations. In the other military programs (guided missiles, vehicles, weapons and electronics) from 65 to 71 percent of the expansions are in dispersed locations.

Currently, new industrial facilities, constructed or financed from procurement appropriations, are governed by Department of Defense Directive No. 4275.2 which includes a requirement that "new projects undertaken or sponsored" shall comply with Government dispersal standards. This directive and its implementing Instruction No. 4275.4 require the procuring service to submit individually to the Secretary of Defense for approval, all projects costing over $1 million. A review of dispersal factors is a required and regular part of such submissions. During the 9 months ending March 31, 1957, 8 projects were approved where new sites were required. Seven of these projects met dispersal standards and one did not.

Stockpile storage.—The location of storage facilities for the national stockpile of strategic and critical materials relative to target areas is covered by classified instructions from ODM to the General Services Administration, dated March 1, 1955. While these instructions have been followed in the location of new storage facilities, not all existing facilities conform because of budgetary limitations.

Of the 224 locations where material is stored, 64 percent are in dispersed areas and 36 percent are associated with potential target areas. Of the total combustible materials, 57 percent are located in safe areas and 43 percent in locations associated with target areas. Quantities of combustible material stored in potential target areas are being decreased through rotation sales. Replacements to the extent possible are stored in safe areas. As an added protection, no more than a small percentage of the minimum objective of any one material is stored at a single location.

Military production planning.—Since 1948, the military departments have been planning mobilization production schedules with specific manufacturers under the production allocation program. Some 19,000 industrial plants are registered for participation in the program for planned production of a variety of important military items. In January 1954, by DOD Directive 4005.6, planning was made much more selective by limiting it to those hard-to-get, long-lead time military items necessary for survival and retaliation, combat efficiency, or maintenance of health. As a result, priority in planning is assigned to a preferential planning list of about 500 end items.

Reports of planning progress on the selected list of about 500 preferential planning list items are now being evaluated. Data from these reports are also being used in damage assessment studies. Based on analyses of these reports, it is expected that increased emphasis will have to be placed on planning for alternate sources for greater dispersal, and in a few instances, for duplicate sources, in order to assure adequate production of essential items in event of substantial losses of productive capacity resulting from enemy attack.

As a further development of production planning against the possibility of attack, the Department of the Air Force, on November 23, 1955, issued a memorandum on Air Force Industrial Production Readiness Policy. Recognizing emergency conditions under which industry would be required to accelerate production in the event of

an emergency, two special planning concepts are outlined, to be applied on a very selective basis. The first is the "Production Compression Concept," which is designed to achieve assembly and delivery of the maximum number of units of equipment which would be critically needed during the early weeks of a general war accompanied by nuclear attack on the United States. The second is the "Production Acceleration Concept," which is designed to provide a capability for rapidly accelerating production of selected weapons that would be critical in a local war. The policy also provides that, where possible and feasible, at least two production sources should be established for each critical weapon system, at least one of which will be dispersed if possible.

Since issuance of this policy, a substantial amount of progress has been made in designating and defining the few critical weapons systems to be included and in selecting specific facilities which will participate in these programs.

Military procurement.—Defense Department Directive 3005.3 emphasizes the importance of integrating current procurement with mobilization planning, and directs that current procurement of preferential planning list items take into account factors such as geographic dispersal, maintaining multiple sources of supply, maximum subcontracting, and preservation of management know-how and essential skilled labor forces. For the 23-month period ending December 31, 1956, 762 new contracts of more than $10,000 each were awarded for preferential planning list items. Of these, 179 were with new suppliers who were not then producing the item, indicating a broadening of the base for about one-fourth of the items covered. Of the contracts going to new suppliers, 51.5 percent, involving 44.3 percent of the dollar value, were to be performed in dispersed locations.

Although the Department of Defense requires that geographic dispersal be taken into account in the placement of contracts, it recognizes that there are obstacles to maximum dispersal which also must be taken into account, such as cost, social, and economic dislocation and delays in military production that would result if dispersion were made a mandatory requirement.

Aircraft, for example, comprise a large part of the military procurement budget, and most aircraft assembly capacity is located in or near major centers of population. The construction of new aircraft plants in dispersed locations not only would involve a prohibitive cost to the Government, but would also create serious economic and social problems in many areas where aircraft production is a vital part of the local economy.

To a considerable extent, second-source procurement is used to reduce the risks of attack where full dispersion is impracticable. For example, both the B–47 medium bomber and B–52 heavy bomber were developed and initially produced by Boeing in Seattle. The B–47 was later produced at Wichita, Kans., at Tulsa, Okla., and at Marietta, Ga. When the B–52 was ready to go into production, it replaced the B–47 in Seattle; and later, in order to develop a second source, it replaced the B–47 production lines in Wichita. Until recently, two sources were maintained for the B–47 which is now gradually going out of production.

The Navy also maintains multiple sources for many principal weapons and supporting systems. The guided-missile Sidewinder is

an example. The Sidewinder was conceived, developed, and initially produced in a United States Navy laboratory. Initial production was set up with the Philco Corp. of Philadelphia, and they, at one of their local facilities, gradually moved into a position where they could produce the item in quantity and quality. The Navy felt there was a need for a second source for this important weapon, and proceeded to establish a bidders' list. A number of factors were taken into consideration in connection with the second-source bidders' list. Among these were strategic location of production sites; facilities, space, and tooling immediately available at these sites; electronics capability within the company; mobilization commitments; prospective mobilization expansion of presently manufactured defense items; and the companies' occupation with other missile programs. No one factor was completely determining except relative vulnerability of the location. This factor in itself eliminated a number of potential bidders and restricted the composition of the list to facilities located in relatively favorable locations. General Electric Co., at Utica, N. Y., was the successful bidder.

Maintenance of the mobilization base.—On March 6, 1957, ODM revised its policy on maintenance of the mobilization base, Defense Mobilization Order VII–7. The revision is similar to the earlier Department of the Air Force policy in recommending actions to achieve a capability to produce urgent items during the initial phase of a nuclear war.

Under the order, the Department of Defense, the Atomic Energy Commission, and the Maritime Administration, to the maximum practical degree, and within the limits of existing procurement authorities and funds available, will place current procurement in the facilities selected to produce the urgent and other essential items. To the extent feasible, the procurement agencies are also called upon to develop and maintain plans for alternate capacity to produce the most urgent items in the event that a disaster destroys current facilities.

In selecting facilities for the mobilization base, the order directs that consideration be given to their vulnerability to nuclear attack, with particular attention to the possibility of (*a*) minimizing vulnerability of facilities producing urgent items, including the need for dispersal, protective construction, and special security measures to safeguard against sabotage or clandestine attack; and (*b*) reducing the concentration of uncommon critical production facilities so that a productive segment of each critical industry would be likely to survive a nuclear attack.

The specific measures recommended, where necessary, include—

(*a*) Maintenance of an increased inventory of finished components and related production supplies at assembly plants, or arrangements for alternative supply lines where increased inventories are not feasible.

(*b*) A capability to carry on urgent production without dependence on additional personnel, external sources of power, fuel, and water, or on long-distance communications; with spare replacements for highly vulnerable or unreliable parts of production equipment.

(*c*) Protection of production facilities from enemy sabotage through adequate physical security measures.

(*d*) Protection of personnel from widespread radiological fallout through provisions for decontamination and shelter.

Construction of Government-owned facilities.—The revised dispersion policy of January 11, 1956 (Defense Mobilization Order I–19) applies to all new facilities important to national security without distinction between Government and private facilities. It provides that departments and agencies will receive guidance on appropriate locations from the Office of Area Development.

This policy, as it applies to Federal facilities, was amplified on January 18, 1956, by a letter from the Director of ODM to the heads of agencies having construction authority, namely, the Defense and Post Office Departments, the Veterans' Administration and the General Services Administration. The letter stated in part:

> The head of the agency concerned is responsible for determining whether the nature of the activity for which a new Federal facility is to be used will permit the use of a dispersed location. No one is in a better position to make such determination than the head of the agency responsible for both the day-to-day operations and the continuity of the agency's essential functions in the event of attack. In making the determination, it should be kept in mind that the intent of the policy is to make us, as a Nation, less vulnerable to weapons of mass destruction. Exceptions are to be avoided insofar as practicable. On the other hand, it is not the intent of this policy that new facilities be located on the basis of security considerations only; it is not intended that we make ourselves so secure as to be ineffective in our day-to-day operations. The head of the agency concerned must balance the requirements for efficient peacetime operations against the need for postattack operational capability. This calls for a conscientious appraisal of all factors involved.
>
> I am sure that in making a determination as to whether an exception is justified you will satisfy yourself that the practical considerations on which you base your decision are both factual and compelling. If you find it necessary to locate closer to the heart of a target than is desirable for security purposes, locations which offer the most protection by reason of ground environment should be explored, suitable protective construction features should be included, and a statement of the factual basis for the exception filed with the Office of Defense Mobilization, in order that the President may be kept informed of progress in the application of this policy.

Department of Defense policies on this matter are contained in directive C–3020.7 and instruction C–3020.8, both dated January 6, 1956. These are classified papers providing for application of the Joint Chiefs of Staff protective construction policy, including dispersion, to military installations.

Since the Post Office Department is directly serving the public where the public is located, it considers that the nature of its activity in major metropolitan areas does not permit a dispersed location. The Post Office Department reports to ODM annually on new facilities under construction or being planned. The last report, May 6, 1956, indicated that of major post office facilities in metropolitan areas recently occupied or under construction, 12 were located outside the downtown congested area and 12 were not.

The Veterans' Administration policy is to apply dispersion standards to the hospital construction program to the greatest extent practicable, but not to a degree which would cause medical service to veterans to suffer.

The dispersion policy was first applied to the VA construction program in early 1955, when it selected sites upon which to construct new neuropsychiatric hospitals in the San Francisco and Cleveland areas. These sites were selected in accordance with the prescribed dispersal criterion at that time. VA had already acquired sites for

these two hospitals within the vulnerable urban district, which have since been disposed of as excess property.

The Veterans' Administration has recently selected a site at Rockville, Md., for a new hospital to replace the Washington, D. C., hospital, after rejecting a previously acquired site at the Soldiers' Home in the severe damage area. The Rockville site is in an area of moderate damage, but the VA feels that it has applied the dispersion standards to the greatest extent possible without causing service to veterans to suffer. (See appendix, p. 44.) In a similar decision at Oakland, Calif., an existing downtown site has been abandoned in favor of a move to Martinez, Calif., in the moderate damage zone. Existing hospitals at Jackson, Miss., and Nashville, Tenn., are to be replaced by new construction, and their location will comply with dispersal standards.

On the other hand, a decision has been made to go ahead on construction of a general medical hospital in Cleveland on an undispersed site acquired in 1950, next to the Western Reserve University Medical School. Consideration was given to acquiring a dispersed site, but it was determined that there are compelling reasons to place this hospital in an excepted category in order to give satisfactory medical care to veterans. A similar exception was made in the replacement of an existing hospital at Downey, Ill.

The General Services Administration, in planning projects under GSA construction programs or projects performed as a service to other agencies, has followed the policy outlined in the ODM Director's letter of January 18, 1956, by requiring agency heads to certify that the order has been complied with. These certifications have been received for all but three locations. They cover 7,478,044 net square feet of space planned in critical target areas, of which the agencies state that only 31,256 net square feet will house activities that could be performed in dispersed locations.

New facilities proposed for construction in the metropolitan area of Washington, D. C., comply with ODM certification requirements; they do not all comply with dispersion requirements. Some of the facilities will be located in Maryland and Virginia. This group includes facilities for the National Bureau of Standards, Central Intelligence Agency, National Meteorological Center—Coast and Geodetic Survey, and the Geological Survey. The Atomic Energy Commission is constructing a new building at a dispersed location near Germantown, Md. Congressional approval has not been obtained for the proposed project for the Meteorological Center—Coast and Geodetic Survey. A construction project for the Geological Survey was proposed to be located outside Washington, D. C., in a nearby area. Approval by the Public Works Committees, however, is contingent upon its location within the city limits of the District of Columbia.

Federal office buildings in other target areas contained in the proposed public buildings purchase contract program, as approved by the Bureau of the Budget, and the House and Senate Public Works Committees, provide space facilities primarily for the Post Office Department, the United States courts, Treasury Department, Internal Revenue Service, Department of Health, Education, and Welfare, and other activities that provide public services. Generally, these activities must be performed in or adjacent to the business area, or they consist of minor components of agencies having headquarters else-

where, which can best perform their services within the metropolitan area.

Of a total approved GSA nationwide construction program involving 34,644,000 gross square feet, 82 percent is located in critical target areas. Excluding the metropolitan area of Washington, D. C., 69.5 percent is located in critical target areas.

4. Emergency relocation

In cases where permanent location in a dispersed area is not feasible, emergency relocation often can provide additional protection against attack. Emergency relocation applies primarily to management functions, since they are crucial to the continuance of an enterprise and they can be fairly easily moved. Accordingly, relocation planning has been urged for industry as part of the various industrial defense programs, and it has been increasingly applied to essential governmental activities necessary to manage a postattack economy and win the ensuing war.

Relocation of industry.—Industrial defense manuals stress the selection of specific locations as alternate company headquarters, furnished with the minimum equipment and facilities needed to allow effective operation of the reconstructed executive team. Emergency records must be available at the alternate headquarters or at some other accessible safe site.

Relatively few companies have carried out such programs, but as more and more companies are made aware of the problems of industrial defense, they are finding that these programs provide good insurance at small cost. Frequently companies with branch plants in isolated locations can make arrangements to use such plants as alternate company headquarters.

One company has purchased a nursing home some distance from the home office. A vault has been built and every day microfilmed documents from the home office are sent out to this center, developed, and stored away in the vault. A duplicate is made and sent to another underground depository. The building is quite large, with sleeping quarters for 65 people. The company has arranged with a caterer to maintain a stock of foodstuffs, and keeps a 24-hour guard around the place. A three-position switchboard and a number of teletype machines have been installed. This is an elaborate example. Smaller companies often find that they can achieve the same purpose by using a home or summer place of one of the executives.

There are several bombproof storage facilities in the United States which rent space for the storage of records. Some larger companies have established their own. A steel producing company has excavated an area of about 17,000 feet in a coal mine where it has established facilities for the storage of all important company records. Another company has utilized a limestone mine. A producer of electrical goods has rented about 40,000 square feet in an underground facility where vital records will be stored. Six people will be maintained there permanently. Provision has been made for teletype and telephone communications with company headquarters and all divisional locations. These are examples of a small but growing trend among alert industrial firms.

Relocation of the seat of government.—Recognizing that the complete dispersal of the Federal Government from Washington would be

impracticable, and that a sit-tight policy could be suicidal for the Nation in the event of attack, the Federal Government has been engaged for several years in a program to plan for the emergency relocation of its essential functions in time of war. This is called the continuity of government program. The present program began in January 1954 with the adoption of a relocation plan for the seat of government and the initiation of a program to determine the essential wartime functions of all Federal agencies.

Since the continuity of government program is limited specifically to those functions which must be continued in the event of war, it was necessary first for each agency to determine its essential wartime functions. Guidelines for this purpose were established by ODM. Under these guidelines, 42 agencies within the executive, legislative and judicial branches of Government have indicated that they have essential wartime functions; 37 have received approval of their statements of functions from ODM; 17 have been judged not to have essential wartime functions; 12 agencies are currently developing their essential wartime functions statements; while 16 have yet to begin work on it.

Agencies having essential functions are assigned space in the "relocation arc for the seat of government," which runs westerly for a distance of 30 to 300 miles from Washington. In choosing emergency relocation sites in their assigned sectors, the agencies are directed to hold new construction to a minimum and to utilize existing facilities, both governmental and nongovernmental, such as colleges and hotels. At present, 45 departments and agencies are using 85 sites in the seat of government relocation arc. Four of these agencies are phantom agencies that would be established in the event of attack, to perform functions required only in wartime, such as censorship and stabilization. Seventy percent of the sites are governmental facilities. Twenty-eight departments and agencies are continuously operating their sites with from 2 to 150 individuals.

The agencies have designated employees to perform their emergency wartime functions, provided them with civil defense identification cards, issued instructions to them on alerting, transportation, and arrangements for families, finances, feeding, and housing. All other personnel are covered under a Civil Service Commission registration plan.

Agencies, with few exceptions, have adequate indispensable records at safe locations readily available for use. These are kept current.

The Civil Service Commission has task forces engaged in studies on "continuous manning of relocation sites on a cadre basis" and "caring in an emergency for families of Federal employees assigned to agency relocation sites."

One prerequisite to effective dispersed operations is the ability to communicate. An interagency communications system has been established and arrangements are being made to provide motor and air transport and mail services between the sites.

Each year the capabilities of the emergency relocation sites are tested during the governmentwide exercise, Operation Alert.

Relocation of Government in the field.—During the past year, the continuity of government program has been extended to Federal installations in the field, first at the regional and then at the local office level. As these field officials are involved in continuity of government

planning they are also being drawn into the substantive planning for actions that would be taken after an attack for survival and rehabilitation.

This program is coordinated in the field by 10 regional mobilization committees, established by Defense Mobilization Order I–1 (Revised) on July 9, 1956. These are interagency committees, made up of 17 agencies with mobilization responsibilities and led by senior officials who have been appointed acting regional mobilization coordinators in addition to their regular duties. Each acting coordinator is supported by an executive officer on loan from one of the member agencies.

All of the regional mobilization committees have made favorable progress in organizing and guiding the efforts of agencies in the relocation program and its supporting elements. Subcommittees have been established for relocation and communication planning and other activities. To date, 225 field relocation sites have been obtained by the various departments and agencies within the executive branch. Many of these relocation sites will be tested for the first time during Operation Alert 1957.

Relocation of State and local governments.—Under the terms of Public Law 920, and Defense Mobilization Order I–18 of January 11, 1956, the Federal Civil Defense Administration is responsible for advising and assisting State and local governments on measures to assure continuity of their essential functions in the event of attack. The program for the continuity of State and local governments is directed toward achieving two major purposes—to preserve the institution of representative State and local government, and to increase the Nation's defense capability by strengthening State and local emergency government operations. The overall program is designed to provide for the maintenance of those State and local government operations required during an emergency and the reestablishment of suspended normal operations as soon as possible thereafter. The four program objectives being recommended for immediate action are: full utilization of State and local personnel, facilities and equipment for emergency government operations; establishment of succession lists; preservation of essential records; and the selection and establishment of emergency relocation sites.

In June 1956, all governors and mayors of cities with populations of over 50,000 were furnished specific action proposals and urged to prepare for the continuity of their governments in an emergency. The response to these recommendations, while not susceptible to quantitative analysis, indicates that a few States and cities have taken effective action.

Although a few governments have already achieved the objectives of the continuity of State and local government program, most of the work remains to be done. Beginning in May 1957, FCDA expects to issue suggested procedures and other guides. These materials will be prepared in collaboration with State, county, and city officials and such professional groups as—

Council of State Governments
National Association of County Officials
American Municipal Association
United States Civil Defense Council
National Association of State and Territorial Civil Defense Directors

International City Engineering Association
American Society for Public Administration

In order to focus attention on the continuity of State and local government program, and to discuss and receive reaction to it, a series of individual meetings has been held with State and local government officials and professional associations whose membership consists of such officials. A series of regional conferences was held in March 1957 with State and city civil-defense directors for these same reasons.

The Federal Civil Defense Administration plans to stress this program with particular emphasis on the need for strengthening emergency government operations at the State and local levels by full utilization of State and local resources.

5. Protective construction

Protective construction is the complement of dispersion. The less dispersed a facility is, the more protective construction is required. Furthermore, it is now apparent that the effects of fallout call for protective construction against radiation hazards even in areas far removed from any potential targets. Accordingly, protective construction can be expected to play a growing role in the future in our arsenal of nonmilitary defense measures.

Guidance to industry.—The Department of Commerce (Office of Area Development) is responsible for providing guidance in the application of the dispersal and protective construction criteria and for referring applicants to FCDA for specific advice on protective construction. FCDA is responsible for issuing protective construction standards and advising on their application at the metropolitan target zone level.

Present protective construction standards are set forth in Interim Design Standards, FCDA Technical Bulletin 5–1, April 1954. These standards are now obsolete, especially with respect to protection against radiological fallout. Since then, FCDA engineers have developed many technical studies on protection from blast, radiation, and fallout and these are continually being issued to industry architects, and builders, as well as State and local government officials. In addition, FCDA approval is required on all requests for accelerated tax amortization for capital expenditures for protective construction. In November 1956, FCDA promulgated criteria which must be met in order for States to become eligible to receive Federal funds for control center construction. These standards not only established criteria for blast, radiation, and fallout protective construction, but also established dispersal principles for the physical location of control centers. An up-to-date edition of Design Standards is now in preparation and should be ready for issuance in a few months.

Several agencies, through their industrial defense programs, have advised industry on protective construction, and there has been some voluntary response. For example, at a recent industrial defense conference, one company reported:

> We decided that in order to protect our personnel in a plant located in a rather strategic part of Ohio, we should have some means of taking care of as many of our personnel as possible. In building a new research and development building, we provided for the construction of that building to withstand at that time what we considered the maximum amount of force that would be created by an explosion 2 or 3 miles away. We also provided an additional shelter in another part

of our property to take care of people who would be nearest that particular facility. Whether it is adequate for the present day H-bomb I do not know. I do not think you could very well build anything to anticipate that. However, it has some defense potential and is provided with emergency electric power and water, and has air filters to take care of radioactive fallout.

The Department of Agriculture has recently prepared a farmers' bulletin, Defense Against Radioactive Fallout on the Farm, describing the hazards of fallout on the farm and providing information on action that can be taken to minimize the effects of fallout on livestock and crops. The publication, now being processed by the Government Printing Office, was prepared in cooperation with the Atomic Energy Commission, Public Health Service, and Federal Civil Defense Administration.

Incentives.—Defense Mobilization Order VI–4, Protective Construction for Industrial Facilities and Availability of Tax Amortization Incentive, March 12, 1954, provides that protective construction, appropriate to the type of facility and its location, shall be encouraged for facilities important to the industrial mobilization base which are not or cannot be located at safe distances from probable targets.

In the order, protective construction is defined as that extraordinary construction, above and below ground, designed to resist weapons effects, including structural strengthening of buildings, installation of damage-resistant materials, compartmentation, special shelters for personnel and equipment, and protection for plant services and utility systems. The order provides that capital expenditures for protective construction in target areas of facilities subject to ODM expansion goals may be fully amortized over a 5-year period under the provisions of section 124A of the Internal Revenue Code.

Since 1954, there has been virtually no use of the incentive of the 100 percent tax writeoff for protective construction. With respect to private facilities which do not meet the dispersion standards, it seems safe to say that in most cases, protective construction has not been incorporated because of the additional costs involved. For the same reasons, protective construction is not being incorporated in the vast majority of Federal facilities and where it is incorporated, it is generally inadequate.

Military protective construction.—The Department of Defense last year issued two orders which, in effect, implement Defense Mobilization Order I–19, requiring that each military department review the need for protective construction and initiate necessary action.[10]

The protective construction features of the military public works construction authorization programs have been reviewed in the light of all current Department of Defense policies relating to the provision of such features. They include measures to reduce vulnerability, to modify the scope of disaster and to accelerate recuperation.

Various authorization proposals by the Army in the fiscal year 1958 budget, include provisions for protective construction features. Twelve projects provide logistic facilities at an estimated increase in cost of 15 percent for protective construction features. Twenty-two projects provide various support facilities at an estimated increase in cost of 2 percent for protective construction features. The total

[10] DOD Directive No. S–3020.7, Implementation of JCS protective construction policy, and DOD instruction No. S–3020.8, Technical guidance for implementation of Joint Chiefs of Staff protective construction policy, January 6, 1956.

added cost of these protective construction features is estimated to be $5 million.

In the Air Force, the cost of the first increment of facilities under the Strategic Air Command disperal plan was approximately $175 million, or about 13 percent of the total for Air Force construction included in the fiscal year 1957 military public works construction program. The second increment requested amounts to about 15 percent of the total fiscal year 1958 program. One additional underground alternate headquarters for a SAC numbered Air Force also is included.

Reduction of SAC vulnerability is one facet of increased deterrent and strike capability. It is expected that before the end of fiscal year 1958, SAC will have been provided with dispersal protection for a major portion of its bomber force.

Studies on protective construction of Government facilities.—On the civilian side, there are a number of studies now in process which may lead to active protective construction programs for certain Government buildings and facilities. Protective construction is being studied in the light of the most recent developments in weapons and the probable effect of long-range ballistic missiles in the foreseeable future.

A study has been undertaken by the General Services Administration to determine the cost of providing shelter within new Federal buildings which will meet FCDA standards, and also to determine what resistance to blast can be afforded in new office building construction for an increase in cost of 5 percent. The study is expected to be completed by July 1. Pending its completion, and the availability of funds for protective construction features in new construction, GSA, in the normal design of buildings in critical target cities, will take full advantage of those areas which afford shelter potential and will develop them to the fullest extent consistent with the practical utilization of this space and within approved limits of cost.

In late 1956, ODM established an interagency committee to analyze the fallout hazard to emergency relocation sites. The committee has recently completed a pilot survey of a cross section of the kinds of structures used as emergency relocation sites, to determine their vulnerability to fallout, identify the countermeasures which would lessen such vulnerability, and develop necessary technical data to enable Government agencies to evaluate the vulnerability of other sites and to plan countermeasures against the threat.

The survey has indicated that, in general, it is possible with minimum expenditures and minor modifications to give a satisfactory degree of fallout protection to the five relocation sites which were surveyed. The next steps in this project are to—

1. Determine the cost of providing adequate shielding for all emergency relocation sites.
2. Extend present radiological defense training for agency personnel.
3. Prepare technical guidelines required for assessing vulnerability to fallout.
4. Develop techniques and procedures for planning alternative courses of action to cope with radiation.

6. Protective controls

In addition to protective construction against the hazards of nuclear and thermonuclear weapons, there are a variety of actions that need to be taken to protect against other hazards of war. These protective controls are generally referred to as "physical security" measures.

Executive Order 10421, issued December 31, 1952, is entitled, "Providing for the Physical Security of Facilities Important to the National Defense." It directs the National Security Resources Board (function now assumed by ODM) to prescribe policies and programs governing the activities of Federal agencies with respect to the physical security of facilities, to develop and promulgate standards of physical security, and to assign facilities to Federal agencies for advising and supervising management in developing physical security measures for these facilities. The order also directs the Secretary of Commerce to establish security ratings of facilities through use of the Industry Evaluation Board, and it continues the Interagency Facilities Protection Board to coordinate the various activities in this field.

The term "physical security" is defined in the Executive order as "security against sabotage, espionage, and other hostile activity and other destructive acts and omissions, but excludes security attributable to operations of military defense or combat and excludes also activities with respect to the dispersal and postattack rehabilitation of facilities." In practice, the Government has not drawn such a narrow definition in developing action programs; industrial defense programs have generally involved all of the various nonmilitary defense measures including physical security measures.

Facility surveys.—There are several thousand key defense industrial facilities in the Nation, which are surveyed periodically and regularly by Government personnel for adequacy of security measures. Followup action is taken in appropriate cases. These surveys are made by the Department of Defense for facilities which are on its key list and by the Atomic Energy Commission for facilities which are important to nuclear development and production.

In the conduct of a defense survey of a defense key facility, inquires and assessments include the identification of critical areas; measures to prevent sabotage; the guard force, guard patrols and watch service; the control of entry and egress; control of critical areas; fire protection and local in-plant and community civil defense liaison organization and activity.

Over the past 5 years, survey records show a marked strengthening of physical security, safeguards, and protective measures in defense key facilities.

Voluntary programs.—The cost of physical security measures in privately owned facilities is borne primarily by industry on a voluntary basis. Where there are contractual relationships between the Government and the owners of key defense industrial facilities, appropriate physical security measures are covered and required by the contracts. This relationship covers a large portion of the most critical defense industrial facilities.

The Agriculture Department's Agricultural Research Service has been delegated responsibility by FCDA to plan a national program and direct Federal activities concerned with research, diagnosis, strengthening of defensive barriers, and control or eradication of

diseases, pests, or chemicals introduced as agents of biological or chemical warfare against animals or crops.

In 1955 and 1956, regional meetings were held throughout the country to discuss these problems with Federal and State animal disease control officials, instructors from veterinary colleges, extension veterinarians, directors of diagnostic laboratories, public health and military veterinarians, and practitioners. A State-Federal emergency animal disease eradication organization has been established in almost all of the States. These organizations are prepared to act promptly if a dangerous foreign disease should be recognized and reported.

During April 1957, a series of eight regional meetings was held to discuss the problems of radiological defense and the hazards of radioactive fallout on the livestock and meat supply of the country. Personnel attending these meetings received training on operating radiation detection instruments. The Department of Agriculture plans to conduct additional research in this field in cooperation with the Atomic Energy Commission, Federal Civil Defense Administration, Department of Defense, and United States Public Health Service.

Government buildings.—In connection with Government buildings, several studies have been made. In March 1951, at the request of the Interdepartmental Committee on Internal Security, GSA prepared a report on Recommendation for Protection of Federal Buildings and Personnel From Unconventional Attack. The scope of the report was limited to protection against covert action employing sabotage or other unconventional methods and materials intended to cause damage or destruction of life and property or to undermine public morale. This report was revised in 1952 and reissued in July 1954.

A Survey to Determine Vulnerability of Certain Government Buildings was submitted to the Interdepartmental Committee on Internal Security by GSA in January 1956. The purpose of the survey was to determine (1) the average cost of making protective surveys, (2) the extent and cost of protective measures required for buildings which house agencies, classified as critical and those in the supporting class. Included in the survey were the (1) State Department Building, (2) Executive Office Building, (3) Federal Office Building No. 2, (4) Department of Justice Building, and (5) General Services Building.

In April 1956 GSA submitted a report to the Interdepartmental Commission on Internal Security on the feasibility of protecting personnel in Government buildings from air contaminated by saboteurs.

Future plans.—Generally, adequate programs have been carried out in connection with the key facilities list, and beyond this, industry has received a great deal of advice through the various publications referred to above. These guides are sufficient, understandable and reasonably uniform in most cases. However, more work is required to refine physical security standards on an industry basis, and to develop a followup system on facilities which have been rated by the Industry Evaluation Board and are not included on the key facilities list of the Department of Defense.

Accordingly, a new defense mobilization order is now under discussion, designed to clarify the policy of the Government in this area and to assign clear responsibility for implementation. Under the proposed order, the Departments of Agriculture, Commerce and Interior, the

Interstate Commerce Commission, and the General Services Administration would be responsible for carrying out phases of the program under standards in conformity with those of the Department of Defense and the Atomic Energy Commission. The issuance and implementation of this new order should go far to assure an adequate level of physical security for all critical facilities in the Nation.

7. Preparations for emergency management

Dispersion, emergency relocation, protective construction and protective controls all have one ultimate purpose—to better the chance that vital facilities will be able to go on operating after an attack. So, in addition to these primarily physical measures, steps must be taken in advance of attack to provide for continuity of management and to make sure that management will actually be able to operate in an emergency situation.

Emergency management of industry.—This subject is involved in the industrial defense programs of the various agencies, but particularly in the program of the Commerce Department. The industrial defense staff of the Business and Defense Services Administration calls its program the continuity-of-management program.

In preliminary analysis of the problem, it became apparent that a critical keystone to continuity of production was continuity of management and technical knowledge. The necessity of avoiding "corporate amnesia" in times of stress is of paramount importance. Without the continuity of executive direction and preservation of vital corporate records, formulas, engineering drawings, specifications, etc., the problems of industrial survival are incalculably multiplied. For these reasons it was felt that a logical first step in providing for the continuity of production was to provide for the continuity of management.

Because of limitations as to personnel and funds, the initial impact of the continuity of management program has been limited to those facilities analyzed and rated by the Industry Evaluation Board and placed upon its critical industrial facilities list. This program has now been in operation for more than 3 years, and more than 75 percent of these several thousand facilities have been brought into it. The companies operating these facilities have sent representatives of top management to Washington to meet with the Administrator and the Industrial Defense Staff of BDSA in order to devise ways and means of providing for the continuity of their production in event of attack.

In February 1957, a special conference on industry planning for the continuity of production was held by the Department of Commerce to appraise progress to date. It was attended by representatives from 27 concerns participating in the continuity of management program. The consensus of the conference was that notable progress has been made in industrial defense planning in the past 3 years. The conference indicated industry acceptance of the principle that planning for continuity of management and of production is essentially a responsibility of industrial management rather than of Government.

BDSA is now broadening the base of its continuity of management activities beyond those concerns on the critical industrial facilities list. During fiscal year 1958, attention will also be focused on concerns producing items essential to civilian survival. In order to accomplish this broadening of the base, the Department of Commerce

Field Service throughout the country will hold indoctrination meetings with industry to encourage their participation in the program.

Representatives of Interior's Office of Minerals Mobilization have discussed continuity of management in conferences with representatives of the industry and at meetings of the industry advisory committees. The topics have included plans for establishment of successions, alternate headquarters and rendezvous points, financing arrangements and additional fiscal agents in other centers, changes in constitution and bylaws to provide adequate corporate powers (such as extending authority to the remaining members of a board of directors to fill vacancies on the board and function in an emergency following a national catastrophe), duplication of vital records and documents and their storage in safe areas at some distance from plant or headquarters. Such plans have been adopted by some of the major industries.

In the transportation field, planning for emergency operations has involved a preselection of alternate routes and facilities. This is compatible with the present trend of constructing newer major travelways outside or around congested areas. A pilot plan to divert and reroute traffic around major traffic centers was conducted in the Kansas City area in 1954. The plan envisions the halting of vehicular traffic outside the target area and of redirecting it over bypass routes around the area to new destinations or holding points. It is to be used as a guide for the development of similar plans in major target areas when funds are available for this purpose. Meanwhile, work to develop similar bypass plans in the field of rail and water transport has been limited to route selections from map studies and analyses based on the knowledge of such facilities by persons in the Interstate Commerce Commission.

Emergency management of Government.—The continuity of government programs at the Federal, State, and local levels has already been described. More is required than the provision of relocation facilities with adequate communications and other supporting requirements. People must be identified to man the sites, they must be trained in their wartime roles, and their ability to perform these roles must be periodically tested. These steps have been taken at the seat of government level and are gradually being extended to the field and to State and local governments.

As previously mentioned, the Federal agencies with essential wartime functions have designated employees to perform these functions. They also have developed succession lists and taken the various steps necessary to assure continuity of management. Additional management personnel have been recruited under the national defense executive reserve, authorized by a 1955 amendment to the Defense Production Act. Under this program, 15 agencies have established or are in process of establishing units of the executive reserve. By the end of the year it is expected that 2,000 top executives from industry, labor, education and other sectors of the economy will have been recruited for the executive reserve.

A concomitant step in emergency management is development of plans for the substantive actions that must be taken in the event of attack, including the drafting of orders that would be issued. ODM has led in the development of an overall plan, called plan D-minus, which assumes an attack, without prior warning, on the continental

United States, its Territories, possessions, and bases overseas, and on its allies. This plan deals with the policies and major steps that would be taken to mobilize and distribute all of our significant resources, such as manpower, food, housing, communications, transport, power and fuel, and materials and productive facilities. Designed to coordinate the resource mobilization actions with military and civil-defense planning, it includes both substantive actions and the organization required to put these actions into effect. The Federal agencies with mobilization delegations from ODM are working on the specific action steps that each would need to take to carry out these plans.

The various plans and actions are tested, and officials trained in their wartime roles, through problem exercises and annual Operations Alert. These latter tests, held each summer, are sponsored jointly by ODM and FCDA. Operation Alert 1957 will be held in July. Its objectives are to appraise and improve our national readiness to take the actions necessary to win a war evolving from attack on United States forces and on the continental United States; to meet the survival and recovery needs of the Nation; and to maintain and strengthen the functioning under emergency situations of government at local, State, and national levels.

On July 12, there will be a hypothetical attack on the United States, and civil-defense units at all levels will come into the exercises. The civil-defense phase will last for 3 days, and then the Federal agencies, manning their relocation sites in force, will spend 5 additional days working on problems of postattack survival.

The cumulative effects of all of these programs—relocation planning, development of postattack action steps, training and testing of the ability of the Government to take these actions—constitute what we call mobilization readiness. We are working toward a goal of readiness-in-being; the counterpart of the military objective of strength-in-being. After the bombs fall it will be too late to start thinking about what to do. We must decide now what we would do, must make sure that the minimum physical preparations are made, and then test and drill the people who would have the major postattack responsibilities, to make sure that they can in fact carry them out.

APPENDIXES

Appendix I

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF DEFENSE MOBILIZATION
I–GEN–DMO–19,
January 11, 1956.

DEFENSE MOBILIZATION ORDER I–19

DISPERSION AND PROTECTIVE CONSTRUCTION—POLICY, CRITERIA, RESPONSIBILITIES

By virtue of the authority vested in me pursuant to the National Security Act of 1947, as amended; Reorganization Plan No. 3, effective June 12, 1953; and the Defense Production Act of 1950, as amended; the following policy, criteria, and assignment of responsibilities for dispersion and protective construction are promulgated:

1. Policy

It is the policy of the United States to encourage and, when appropriate, to require that new facilities and major expansions of existing facilities important to national security be located, insofar as practicable, so as to reduce the risk of damage in the event of attack; and to encourage and, when appropriate, require the incorporation of protective construction features in new and existing facilities to provide resistance to weapons effects suitable to the locations of said facilities.

2. Criteria

(*a*) The distance of a facility from the probable area of destruction is the controlling factor in reducing the risk of attack damage to such facility. In determining the appropriate distance consideration will be given to all relevant factors, including—

(1) The most likely objects or targets of enemy attack, such as certain military, industrial, population, and governmental concentrations.

(2) The size of such targets.

(3) The destructive power of a large yield weapon or weapons suitable to the particular target.

(4) The gradation of pressures and thermal radiation at various distances from an assumed point of detonation.

(5) The characteristics of the proposed facility, including underground and built-in protective construction features, with respect to its resistance to nuclear, chemical, and unconventional weapons.

(6) The degree of damage which a facility could sustain and still remain operable.

(7) The ground environmental or natural barriers which might provide added protection to the facility.

(8) The economic, operational, and administrative requirements in carrying out the function for which the facility is to be provided.

(*b*) While no single distance standard and no single set of protective construction specifications against nuclear, chemical, and unconventional weapons are feasible for all situations, the above factors will be applied so as to achieve the most protection practicable for a specific situation.

3. Responsibilities

(*a*) All departments and agencies of the executive branch of the Federal Government are responsible for adherence to the policy and criteria herein set forth with respect to programs under their control. Without limitation, specific reference is made to the following:

(1) All agencies: (*a*) Programs for minimizing the vulnerability of the mobilization base (DMO–I–4, par. 17); (*b*) consideration of dispersed location

and protective construction in the review of application for tax amortization (DMO–III–1, pars. 4 and 5; DMO–VI–4; (*c*) application of dispersion standards to facilities of the executive branch, in accordance with policy and standards issued by Director, Office of Defense Mobilization.

(2) Department of Defense: Programs for maximum use of dispersed plants, and development of standards for strategic locations and physical security (DMO–I–12, par. 2, g, h, and o).

(3) Department of the Interior: Programs for continuity of production of certain assigned industries (DMO–I–13, par. 2, j).

(4) Department of Agriculture: Programs for operation of vital food facilities (DMO–I–9, par. 2, h).

(5) Department of Commerce: Programs for dispersion and continuity of production (DMO–I–8, par. 2, g and h).

(6) Federal Civil Defense Administration: Development and coordination of plans and programs for the reduction of urban vulnerability (DMO–I–18).

(*b*) The Department of Commerce (Office of Area Development) is responsible for providing guidance and assistance to departments and agencies of the Federal Government, to industry, public and private persons and organizations, including local dispersion committees, in the application of the policy and criteria contained herein.

(1) By agreement between the Department of Defense and the Department of Commerce, Department of Defense will provide guidance on certain industrial and other nonmilitary projects in which it has a direct and special interest.

(2) The Department of Commerce may make similar arrangements with other departments and agencies to provide guidance on projects in which they have a direct and special interest, provided that reasonable safeguards to assure consistency and uniformity in the application of the policy and standards are maintained.

(3) The Department of Defense is responsible for the application of this policy to military projects without consultation with the Department of Commerce, but with due regard to the location of other vital facilities and plans for reduction of urban vulnerability as developed by the Federal Civil Defense Administration.

(*c*) The Federal Civil Defense Administration, responsible for the development and coordination of plans and programs for the reduction of urban vulnerability, is responsible for integrating, at the metropolitan target zone level, dispersion actions with all other measures which can make urban areas less attractive targets. It is also responsible for promulgating construction standards and specifications for the protection of persons and property from nuclear and unconventional weapons effects. The Department of Commerce and all others concerned will be governed by such standards in rendering the guidance and assistance described in paragraph (*b*) above.

4. *Rescissions*

This order supersedes the dispersion policy statement of August 10, 1951.

5. This order is effective immediately.

OFFICE OF DEFENSE MOBILIZATION,
ARTHUR S. FLEMMING, *Director.*

APPENDIX II

EXECUTIVE OFFICE OF THE PRESIDENT,
OFFICE OF DEFENSE MOBILIZATION,
October 11, 1956.

Memorandum for: Mr. George B. Beitzel, Assistant Director for Production.
Subject: Dispersion and protective construction—Policy, criteria, responsibilities applicable to defense facilities included in applications for tax amortization.

The following criteria shall be followed in applying the dispersion policy (DMO I–19) to defense facilities included in applications for tax amortization:

1. In order to encourage dispersion, if there is additional capital investment required to locate a facility at an acceptable, dispersed site, over and above that required to locate at an undispersed site which would be chosen normally for economic, operational, or administrative reasons specifically related to the type

of facility involved, such additional capital investment will be eligible for 100-percent certification for rapid tax amortization.

(*a*) Applicants for tax amortization shall submit appropriate data to explain and justify fully such additional capital investment. The appropriate delegate agency having mobilization responsibilities in the industry area involved shall review the data submitted by the applicant and submit a report and recommendation to the certifying authority.

2. Except as noted below, all applications for rapid tax amortizations for the construction of new facilities or for major expansions of existing facilities, will be reviewed by the Office of Area Development, Department of Commerce, to determine whether the proposed location of such facilities complies with DMO I–19. The following types of facilities are considered to comply with the dispersion policy:

(*a*) Underground facilities in a nondispersed area, such as pipelines;

(*b*) Mobile facilities with no fixed locations, such as airplanes, ships, and railroad rolling stock.

3. This dispersion policy shall not be applicable to the following new facilities or expansion of existing facilities:

(*a*) Any expansion of existing facilities which represents not in excess of 50 percent of the capacity existing at the present site; provided, however, that the cost of such facility expansion as estimated by the applicant does not exceed $5 million.

(*b*) New facilities, other than an expansion of existing facilities, estimated by the applicant to cost less than $1 million.

4. Additions to existing facilities and new facilities in areas which do not conform to the dispersion policy and which do not come within the meaning of paragraphs 2 and 3 shall not be certified for tax amortization except in unusual cases which qualify under the following rule:

(*a*) The facility under consideration is determined to be necessary to satisfy a Department of Defense or Atomic Energy Commission requirement which cannot be met by existing facilities or from facilities now being constructed or planned.

5. In determining whether a given facility is eligible for an exception under the rule stated in paragraph 4, a fully documented justification shall be obtained from the appropriate delegate agency having mobilization responsibilities in the industry area involved and also from the appropriate procurement agency.

6. These criteria shall be applied to applications for tax amortization heretofore denied solely for failure to comply with the dispersion policy.

ARTHUR S. FLEMMING, *Director.*

CHANGE IN HOSPITAL SITE

On page 30, the report on Reducing Our Vulnerability To Attack states that the Veterans' Administration recently selected a site at Rockville, Md., for a new hospital to replace the Washington, D. C., hospital. In a letter dated June 4, 1957, after the report was submitted to the committee, the Director of the Office of Defense Mobilization advised the committee of the change which follows: "On May 24, VA Administrator Higley announced that the condemnation proceedings for the Rockville land had been discontinued, and that the hospital would be built on land which the Veterans' Administration already holds at the Soldiers' Home in Washington. Mr. Higley indicated that he had changed plans because of the cost of the Rockville property, difficulties in obtaining desired rights-of-way to it, its questionable location in terms of dispersion, and its distance from Washington medical schools."

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